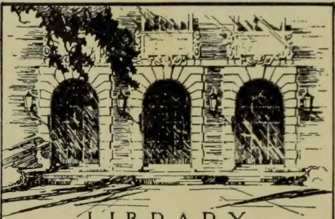

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THE
JOHNS HOPKINS
UNIVERSITY CIRCULAR

THE BOTANICAL GARDEN OF THE UNIVERSITY

NOTES IN BOTANY AND ZOOLOGY

COLLEGE COURSES FOR TEACHERS

Baltimore, Maryland
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THE BOTANICAL GARDEN

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COLLEGE COURSES FOR TEACHERS

BALTIMORE
The Johns Hopkins Press
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JOHNS HOPKINS UNIVERSITY CIRCULAR, No. 217

JUNE, 1909

CONTENTS

PAGE

THE BOTANICAL GARDEN OF THE UNIVERSITY, ... 3

NOTES IN BOTANY AND ZOOLOGY :

The Stem Offshoot in Erythronium Propullans, *Gray*. By F. H. BLODGETT 36

The Nature of the Embryo Sac of Peperomia. By W. H. BROWN, . 40

Nuclear Phenomena in Pyronema Confluens. By W. H. BROWN, . . 42

Pinna Seminuda. By B. H. GRAVE, ... 46

COLLEGE COURSES FOR TEACHERS, 1909-10, ... 52

PROCEEDINGS OF SOCIETIES, ... 63

PLAN OF ARRANGEMENT

OF THE

BOTANICAL GARDEN

AT HOMEWOOD

A GUIDE TO THE GARDEN

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1909/10-1919/20

THE
JOHNS HOPKINS UNIVERSITY CIRCULAR

New Series, 1909, No. 6 **JUNE, 1909** **Whole Number, 217**

THE BOTANICAL GARDEN

The Botanical Garden of the Johns Hopkins University is in the western part of Homewood, opposite Thirty-fourth street, and directly west of the Carroll Mansion. It is immediately north of the greenhouse, which is visible from Wyman Park drive.

The garden is being established primarily as an aid to botanical research and instruction in the university, and its arrangement has been planned with this end in view. It is believed, however, that the garden and greenhouse will prove interesting to all members of the university, and to other citizens of Baltimore as well. All visitors will be welcomed, but are requested to carefully avoid injuring the plants and lawns. Like consideration should be shown for all plants in the forest at Homewood, as well as for the trees themselves. Permission to enter the greenhouse must be obtained from the gardener.

The garden consists of four *Sections.—Section I* illustrates the chief types of vegetative organs of plants, i. e., of root, stem and leaf (see outline, page 8). The arrangement of these types is in part a morphological, in part a biological, one. *Section II* is given to the illustration of the structure and biology of the reproductive organs of plants, i. e. of sporangia, flowers, seeds, fruits. *Section III* illustrates the genealogy of plants as indicated by their classification. It includes illustrations of the various kinds and degrees of kinship, of a number of historically important systems of classification, of the modern system of Engler, and, finally, it also illustrates in some detail the variety in structure and in geographical distribution found among the members of a few selected families of seed-plants. *Section IV* contains a selected series of useful and of ornamental plants, chiefly those native to temperate regions, though a few of the more important tropical economic plants are shown. Other tropical plants will be found in the greenhouse, and occasionally these are referred to by special labels placed in the proper beds in the garden.

In the further development of the botanical garden, it is planned to illustrate various types of plant associations, some of the important facts of geographical distribution and the habitat-relations of various plant forms. It is expected that the general planting of the Homewood grounds may be carried out in such a way that the groups of shrubs and trees so used shall have scientific as well as an ornamental value.

EXPLANATION OF ARRANGEMENT AND OF LABELS

The series of types, of structure, relationship, etc., shown in each *Section* of the garden, is divided into subordinate groups of successively lower grades. These subordinate groups are *Division, Subdivision,* and groups without titles but designated by letters and signs. The sequence of these groups is (starting with the highest) *Division, Subdivision,* A, *a,* *, † and ‡.

Each individual type of structure etc., will be designated, in this guide and on the labels, by a number. All species used in the garden to illustrate a given type will bear the number of this type on their labels. In the guide this number will be found at the extreme left of the page, opposite the name of the group. In the garden these numbers are at the bottom on the group labels and at the top on the species labels.

The numbers at the bottom of a group label indicate the kinds and number of types of structure included in the group. For example:—The numbers 16-19 on the label for *Subterranean Stems* indicate that the types included in this category are those bearing these numbers, in the guide and on the labels, i. e., *Rhizomes, Tubers, Corms,* and *Bulbs;* the numbers 288-290 on the label for *indehiscent Fruits* indicate that this group includes the *Achene, Nut,* and *Caryopsis.*

The number at the top of a species label indicates the type of structure, relationship or economic plant illustrated by this species. A reference to this number in the guide, or in the garden, to the nearest group-label bearing this number, will show what is illustrated by the species. For example:—Any species label bearing the number 8 indicates that the plant illustrates the use of the roots as tendrils; the number 529 indicates that the species belongs in the *Series Rosales* of Engler; the number 600 designates the species as a *cereal.*

The location in the garden of the illustrations of any particular group of structures or relationships may be readily seen by a comparison of the outline of the chief groups (p. 8) and the plan showing the arrangement of beds in the garden, (plate I). On the latter the area devoted to each *Division* is indicated by heavy red lines.

Section I is in the northeast quarter of the garden, the types being numbered from 1-113. *Section II* is in the southeast quarter (Nos. 200-313.) *Section III* is contained chiefly in the southwest quarter (Nos. 400-558), but partly in the northwest quarter (Nos. 559-571). *Section IV* is also contained in the northwest quarter (Nos. 600-652). The sequence of the types within each quarter is readily seen from the numbers on the labels. These are arranged in regular succession along the beds as far as possible, and, where this succession has been broken, an index label has been used to show where next following numbers are to be found.

BOTANICAL GARDEN AT HOMEWOOD

Chief Groups in the Garden

SECTION I. VEGETATIVE ORGANS.

DIVISION I. ROOTS.

Subdivision I. Subterranean Roots.
“ II. Aquatic Roots.
“ III. Aerial Roots.
“ IV. Parasitic Roots.

DIVISION II. STEMS.

Subdivision I. Leafless Stems.
“ II. Foliage Stems.
“ III. Branch Systems.

DIVISION III. LEAVES.

Subdivision I. Cotyledons.
“ II. Foliage Leaves.

SECTION II. REPRODUCTIVE ORGANS.

DIVISION I. FOR VEGETATIVE PROPAGATION.
“ II. FOR ASEXUAL REPRODUCTION.
“ III. FOR SEXUAL REPRODUCTION.

Subdivision I. Sexual Organs.
“ II. Accessory Reproductive Organs.

SECTION III. PLANT RELATIONSHIP.

DIVISION I. DEGREES OF RELATIONSHIP.
“ II. HISTORY OF CLASSIFICATIONS.

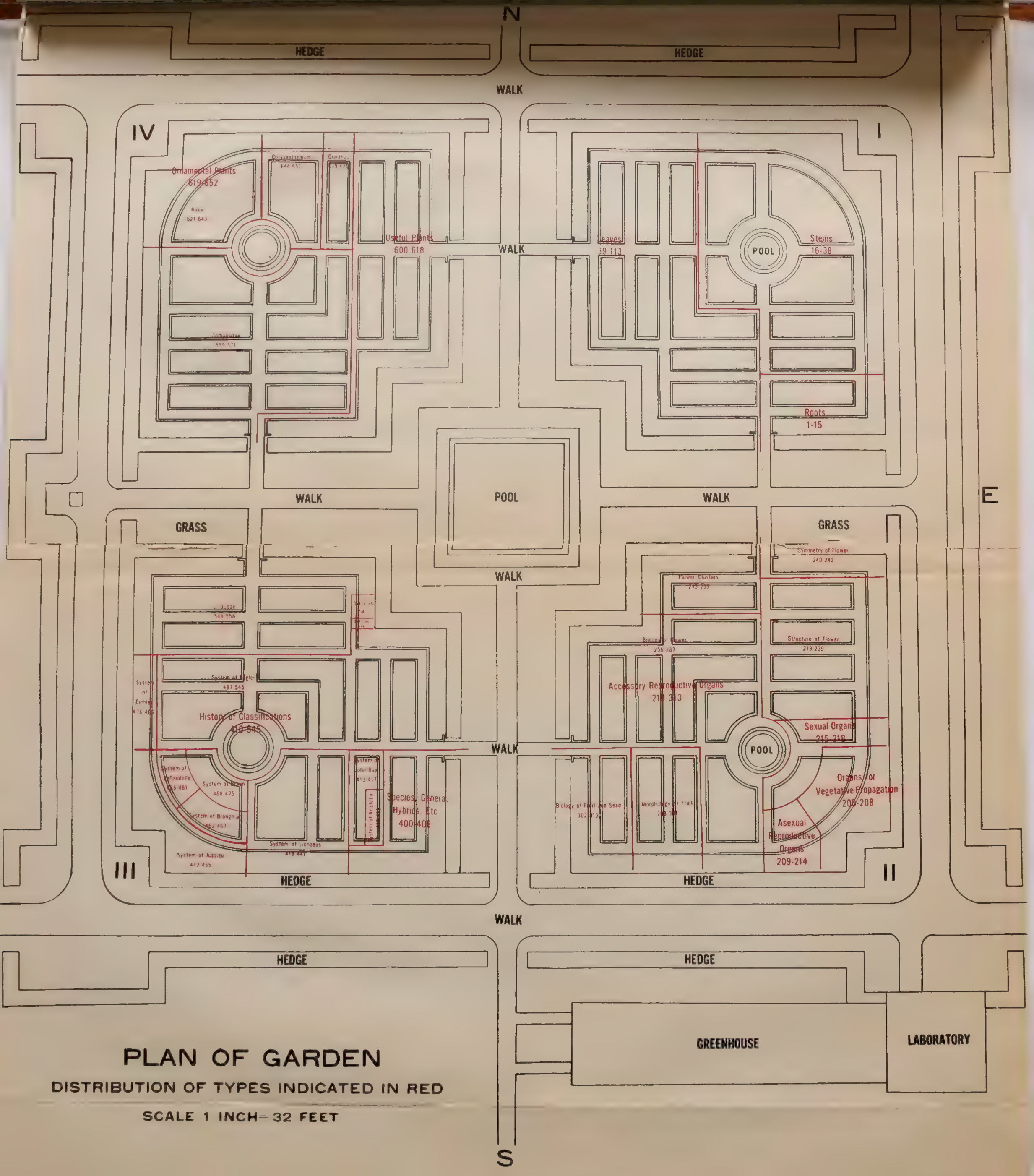
Subdivision I. System of Aristotle.
“ II. “ “ Ray.
“ III. “ “ Linnaeus.
“ IV. “ “ de Jussieu.
“ V. “ “ de Candolle.
“ VI. “ “ Brongniart.
“ VII. “ “ Braun.
“ VIII. “ “ Eichler.
“ IX. “ “ Engler.

DIVISION III. SELECTED FAMILIES.

SECTION IV. ECONOMIC PLANTS.

DIVISION I. USEFUL PLANTS.
“ II. ORNAMENTAL PLANTS.

SCALE 1 INCH= 32 FEET



PLAN OF GARDEN

DISTRIBUTION OF TYPES INDICATED IN RED

SCALE 1 INCH = 32 FEET

OUTLINE OF THE TYPES OF PLANT ORGANS, OF PLANT RELATIONSHIPS, AND OF ECONOMIC PLANTS ILLUSTRATED IN THE GARDEN*

SECTION I. VEGETATIVE ORGANS.

DIVISION I. ROOTS.

SUBDIVISION I. SUBTERRANEAN ROOTS.

1 Tap Roots.
2 Fascicled Roots (clustered roots).
3 Fibrous Roots.

SUBDIVISION II. AQUATIC ROOTS.

4 Bottom Roots.
5 Floating Roots.

SUBDIVISION III. AERIAL ROOTS.

6 Prop Roots.
7 Protective Roots (root-thorns).
8 Tendril Roots.
9 Attaching Roots (of air plants).
10 Attaching and Absorbing Roots (of air plants).

SUBDIVISION IV. PARASITIC ROOTS.

11 Water-Absorbing Roots.
12 Food-Absorbing Roots.

SUBDIVISION V. SYMBIOTIC ROOTS.

13 Mycorhizal Roots (with fungus threads instead of root hairs).
14 Bacterial Roots (with bacterial tubercles).
15 Nostoc-Holding Roots.

DIVISION II. STEMS.

SUBDIVISION I. LEAFLESS STEMS (I. E. WITH SCALE-LIKE LEAVES.)

A. SUBTERRANEAN STEMS.

16 Rhizomes.
17 Tubers.
18 Corms.
19 Bulbs.

B. AERIAL LEAFLESS STEMS.

20 Cactoid Stems (fleshy green stems).
21 Phyllocladia (leaf-like stems).

---

*All types illustrated in the garden are indicated in this list. Each type is given a number here, which also will be on the top of the label of every species used to illustrate that type.

Subdivision II. Foliage Stems.

- A. Aquatic Stems.
  - 22 Rooting Aquatic Stems.
  - 23 Floating Aquatic Stems.
- B. Procumbent Stems (creeping stems).
  - 24 Free Procumbent Stems.
  - 25 Rooting Procumbent Stems.
- C. Climbing Stems.
  - 26 Twig (or thorn) Climbers.
  - 27 Tendril Climbers.
  - 28 Twiners.
  - 29 Root Climbers.
- D. Erect Stems.
  - 30 Caudex (palm-like stem).
  - 31 Culm (grass-like stem).
  - 32 Caulis (herbaceous stem).
  - 33 Undershrubs.
  - 34 Shrubs.
  - 35 Trees.

Subdivision III. Branch Systems.

- 36 A. Monopodia.
- B. Sympodia.
  - 37 False Monopodia.
  - 38 False Dichotomies.

DIVISION III. LEAVES.

Subdivision I. Cotyledons.

- 39 Storage Cotyledons.
- 40 Absorbing Cotyledons.
- 41 Starch-Making Cotyledons.

Subdivision II. Foliage Leaves.

- A. Leaf-Arrangements (Phyllotaxy).
  - 42 *a. One-Leaved Plants.*
  - 43 *b. Two-Leaved Plants.*
  - *c. Whorled Leaves.*
    - 44 Whorls of Two (decussate).
    - 45 Whorls of Several (verticillate).
  - *d. Alternate Leaves.*
    - 46 Two-Ranked Leaves.
    - 47 Three-Ranked Leaves.
    - 48 Five-Ranked Leaves.
    - 49 Eight-Ranked Leaves.
    - 50 Thirteen-Ranked Leaves.

- B. VERNATION (FOLDING OF LEAF IN BUD).
  - 51 Circinate Leaves.
  - 52 Involute Leaves.
  - 53 Convolute Leaves.
  - 54 Revolute Leaves.
  - 55 Plicate Leaves.
  - 56 Conduplicate Leaves.
- C. LEAF-PARTS.
  - *a. Stipules.*
    - 57 Sheathing Stipules.
    - 58 Fused Stipules (Ochreae).
    - 59 Starch-Making Stipules.
  - *b. Petiole (leaf-stalk).*
    - *Petioles Undeveloped.
      - 60 Sessile Leaves.
      - 61 Perfoliate Leaves.
      - 62 Connate Leaves.
    - **Petioles Developed (leaves stalked).
      - 63 Petioles Short.
      - 64 Petioles Long.
      - 65 Petioles with Pulvinus.
      - 66 Petioles Flattened (Phyllodia).
  - *c. Leaf Blades.*
    - *Leaf-Shapes.
      - 67 Orbicular Leaves.
      - 68 Cordate Leaves.
      - 69 Saggitate Leaves.
      - 70 Triangular Leaves.
      - 71 Elliptic Leaves.
      - 72 Ovate Leaves.
      - 73 Oblong Leaves.
      - 74 Lanceolate Leaves.
      - 75 Spatulate Leaves.
      - 76 Linear Leaves.
      - 77 Acicular Leaves (awl-shaped).
      - 78 Cylindrical Leaves.
    - **Leaf Margins.
      - 79 Entire Leaves.
      - 80 Serrate Leaves.
      - 81 Crenate Leaves.
      - 82 Sinuous Leaves.
      - 83 Palmately Lobed Leaves.
      - 84 Pinnately Lobed Leaves.
      - 85 Parted Leaves.

86 Divided Leaves.
87 Multifid Leaves.
88 Palmately Compound Leaves.
89 Pinnately Compound Leaves.
***Leaf Mosaics.
90 On Horizontal Shoots.
91 On Vertical Shoots.
92 Anisophylly.
****Venation of Leaves.
93 Palmate Veins.
94 Pinnate Veins.
95 Parallel Veins.
96 Reticulate Veins.
D. SECONDARY ADAPTATIONS OF LEAVES.
a. Storage Leaves.
97 Starch-Storing Leaves.
98 Water-Storing Leaves.
b. Aquatic Leaves.
99 Submerged Leaves.
100 Floating Leaves.
c. Tendril-Leaves.
101 Petiole-Tendrils.
102 Blade-Tendrils.
d. Protected Leaves.
*Protected Against Drying.
103 Bud-Scales.
104 Rolled Leaves.
105 Hairy Leaves.
**Protected Against Animals.
106 Poisonous Leaves (distasteful leaves).
107 Resembling Poisonous Leaves (mimicry).
108 Spiny Leaves.
109 Folding Leaves (sensitive leaves).
110 ***Protected Against Radiation (sleep movements).
111 ****Protected Against Insolation (compass plants).
e. Absorbing Leaves.
112 Water-Absorbing Leaves (of air plants, etc.).
113 Nitrogen-Absorbing Leaves (insectivorous leaves).

SECTION II. REPRODUCTIVE ORGANS.

DIVISION I. ORGANS FOR VEGETATIVE PROPAGATION.

200 A. SOREDIA.
201 B. GEMMAE.
C. BUDS AND BRANCHES.
202 Buds From Leaf.
203 Buds From Root.
204 Deciduous Branches.
205 Stolons (runners).
206 Tubers.
207 Bulbs and Bulblets.
208 Apogamous Embryos.

DIVISION II. ORGANS FOR ASEXUAL REPRODUCTION.

A. CONIDIA.
209 On Conidiophores.
210 On Basidia.
B. ENDOSPORES.
211 Spores in Asci.
212 Spores in Capsules.
213 Spores in Sporangia.
214 Apospory.

DIVISION III. ORGANS FOR SEXUAL REPRODUCTION.

SUBDIVISION I. SEXUAL ORGANS (PRODUCING SEX CELLS).
215 Antheridia and Archegonia.
216 Stamens and Ovules.
217 Apogamy.
218 Parthenogenesis.

SUBDIVISION II. ACCESSORY REPRODUCTIVE ORGANS (FLOWERS).

A. STRUCTURE OF FLOWERS.
a. Perianth.
219 Perianth Wanting (flowers naked).
220 Perianth Undifferentiated (flowers homochlamydeous).
221 Pseudoperianth (broadened stamen).
b. Calyx.
222 Flower Polysepalous (sepals distinct).
223 Flower Gamosepalous (sepals united).
c. Corolla.

224 Flower Apetalous (petals wanting).
225 Flower Polypetalous (petals distinct).
226 Flower Gamopetalous (petals united).

d. Stamens.

227 Stamens Distinct.
228 Stamens Monadelphous (in one group).
229 Stamens Diadelphous (in two groups).
230 Stamens Syngenesious (united by the anthers).
231 Stamens Hypogynous (inserted on receptacle).
232 Stamens Epipetalous (on the petals).
233 Stamens Perigynous (around the ovary).
234 Stamens Epigynous (upon the ovary).

e. Ovaries (pistils).

235 Simple Ovary (of one carpel).
236 Compound Ovary (of more than one carpel).
237 Superior Ovary (free from calyx).
238 Inferior Ovary (adnate to calyx).
239 Stalked Ovary (raised on gynophore).

B. SYMMETRY OF FLOWERS.

240 Flowers Actinomorphic (radial, i. e. with two or more planes of symmetry).
241 Flowers Zygomorphic (with one plane of symmetry only).
242 Asymmetric Flowers (with no plane of symmetry).

C. FLOWER CLUSTERS (INFLORESENCES).

243 *a. Flowers Solitary.*

b. Monopodial Infloresences (indeterminate).

244 Spikes.
245 Catkins.
246 Spadices.
247 Racemes.
248 Capitula.
249 Umbels.
250 Panicles.

c. Smypodial Infloresences (determinate, or cymose).

*Monochasium (each unit of the sympodium bearing one lateral branch before terminating in a flower).

251 Helicoid Cyme.
252 Scorpioid Cyme.

**Dichasium (each unit of the sympodium bearing two lateral branches before terminating in a flower).

253 Cyme.
254 Cymose Umbel.
255 Fascicle.

D. BIOLOGY OF FLOWERS (ARRANGEMENTS FOR POLLINATION).

a. Methods of Pollination.

256 *Self-Pollination Obligate (cleistogamous flowers).
257 **Self-Pollination Facultative (autogamous flowers).
***Self-Pollination Impossible (herkogamous flowers).
258 Monoecious Flowers (stamens and pistils in different flowers of the same plant).
259 Dioecious Flowers (stamens and pistils on different plants).
260 Polygamous Flowers (some flowers of an individual with both stamens and pistils, others with stamens only or pistils only).
261 Proterogynous Flowers (stigma of each flower maturing before the anthers).
262 Protandrous Flowers (pollen maturing before the stigma).
263 Heterostylous Flowers (styles, often stamens also, of different length in different flowers).
264 Complex Floral Mechanisms (detachable pollinia, irritable stamens, etc.).

b. Means of Pollination.

*Means of Self-Pollination.
265 By Deciduous Corolla.
266 By Curving Filaments.
**Means of Cross-Pollination.
†Wind-Pollinated Flowers.
267 Flowers Without Stigmas.
268 Flowers With Stigmas.
††Flowers Pollinated by Animals.
‡Types of Attractive Structures.
269 Showy Flowers (large or brightly colored corolla, calyx, or stamens).
270 Flower-Associations (clusters).
271 Showy Bracts.
272 Pollen-Flowers.
273 Open Nectaries.
274 Concealed Nectaries.
‡‡Fitted for Pollination by Special Animals.
275 Pollinated by Flies.
276 Pollinated by Wasps.

277 Pollinated by Honey-Bees.
278 Pollinated by Bumblebees.
279 Pollinated by Butterflies.
280 Pollinated by Moths.
281 Pollinated by Humming-Birds.

c. *Protection of Pollen and nectar.*

*From Rain.

282 By Pendant Flowers.
283 By Closing of Flowers.
284 By Roof Over Stamens.

**From Non-Useful Insects ("unbidden guests").

285 By Bristles or Spines.
286 By Viscid Secretions.
287 By Water Cups.

E. MORPHOLOGY OF FRUIT.

a. *Pericarp Dry.*

*Indehiscent Fruits.

288 Achene (simple, one-celled).
289 Nut (compound, one-celled).
290 Caryopsis (grass type).

**Dehiscent Fruits.

291 Follicle (pod of one carpel, splitting ventrally).
292 Legume (pod of one carpel, splitting at both edges).
293 Silique (capsule of two carpels, with parietal placentae and false dissepiments).
294 Capsule (box-like).
295 Pyxidium (circumcissile capsule).
296 Pore-Capsule (opening by pores).

b. *Pericarp Fleshy (fleshy fruits).*

*Indehiscent.

297 Drupe (stone-fruit).
298 Berry (fleshy, with one or several imbedded seeds).

**Dehiscent.

299 Fleshy Capsule.

300 c. *Multiple Fruits (from fusion of several pistils).*
301 d. *False Fruits (flesh of the fruit not from carpels).*

F. BIOLOGY OF FRUITS AND SEEDS (ARRANGEMENTS AIDING DISPERSAL).

a. *Adaptations of Fruits.*

*Explosive Fruits.

302 Turgescent Fruits.
303 Dry, Elastic Fruits.

304 **Wind-Scattered Fruits.
305 ***Floating Fruits.
****Fruits Dispersed by Animals.
306 Hooked Fruits.
307 Edible Fruits.
b. Adaptations of Seeds.
*Wind-Scattered Seeds.
308 Winged Seeds.
309 Hairy Seeds.
310 Minute Seeds (with air tissue in seed-coat).
**Seeds Dispersed by Animals.
311 Sticky Seeds.
312 Seeds with Edible Aril.
313 Seeds With Edible Caruncle.

SECTION III. PLANT RELATIONSHIP. (Genealogy of Plants).

Natural relationship in plants, as among men, is due to common parentage, i. e. is based on community of descent. The kinship of two plants or groups of plants is distant or close, according to the greater or less remoteness of their last common ancestor. A natural classification of plants aims to arrange the innumerable individual plants of the earth, according to their closer or more distant kinship, into groups of lower and higher grade,—into "*species*," "*genera*," "*families*," "*series*," "*classes*" and "*divisions*" of the vegetable kingdom. Under *Division I* (400-409) are shown illustrations of these groups, as far as the "*family*," and of certain subdivisions of "*species*." In *Division II* will be illustrated certain earlier interpretations of plant relationship, showing the gradual approach to our present understanding of their kinship, also the System of Linnaeus, which was avowedly artificial and was devised primarily for its usefulness in identifying species. In the Engler System (487-545), which is now the most generally accepted interpretation of our present knowledge of plant relationship, may be found illustrations of "*series*," "*classes*," and "*divisions*."

DIVISION I. DEGREES OF RELATIONSHIP.

A. SPECIES.
a. Constituents of Species.
400 *Individuals: Several plants of a species, showing distinctness in minor details, such as number and shape of leaves, degree of development of branches, etc., among plants making up the species.

401 **Sub-Species (varieties): Two or more varieties, of the same species, showing distinct groups of individuals within the species.

402 *b. Specific Distinctions:* Plants of two or more closely related species to show the nature and degree of specific differences.

c. Derivatives of Species.

403 *Sport: A parent species with its offspring, showing marked *temporary* deviation from parental type.

404 **Mutant: A parent species with its offspring, showing the marked new characters that have suddenly appeared in certain of the offspring, and that are inherited by the descendants of the latter.

***Hybrids.

405 †Mendelian Hybrid: The male and female parent plants with the hybrid offspring of the first, second and third generations, showing segregation of parental characters in the individual offspring, after the first generation.

406 ††Blend-Hybrid: The two parents with three generations of offspring, showing the blending of the parental characters in each of the offspring, from the first generation onward.

B. THE GENUS.

407 *a. Constituents of the Genus:* Three diverse species of the same genus, to show the degree of likeness and difference within one genus.

408 *b. Generic Distinctions:* Plants of two or more closely related genera, to show the nature and degree of generic distinctions.

409 C. THE FAMILY: Five genera, showing the degree of likeness and difference within a single family.

DIVISION II. HISTORY OF CLASSIFICATIONS.

SUBDIVISION I. SYSTEM OF ARISTOTLE, B. C. 330.

410 Arbores (trees).

411 Frutices (shrubs).

412 Herbae (herbs).

SUBDIVISION II. SYSTEM OF JOHN RAY, A. D. 1703.

A. HERBAE (HERBS): PLANTS WITHOUT WINTER BUDS.

413 *a. Imperfectae (flowerless):* Algae, fungi, mosses, ferns, duckweeds.

b. Perfectae (flowering).

414 Dicotyledones (with two seed-leaves).
415 Monocotyledones (with one seed-leaf).

B. Arbores (with scaly winter buds).

416 Monocotyledones.
417 Dicotyledones.

Subdivision III. Artificial System of Linnaeus, A. D. 1733.

418 "Class" I. Monandria (flowers with one stamen).
419 " II. Diandria (flowers with two stamens).
420 " III. Triandria (flowers with three stamens).
421 " IV. Tetrandria (flowers with four stamens).
422 " V. Pentandria (flowers with five stamens).
423 " VI. Hexandria (flowers with six stamens).
424 " VII. Heptandria (flowers with seven stamens).
425 " VIII. Octandria (flowers with eight stamens).
426 " IX. Enneandria (flowers with nine stamens).
427 " X. Decandria (flowers with ten stamens).
428 " XI. Dodecandria (flowers with eleven to nineteen stamens).
429 " XII. Icosandria (flowers with twenty or more stamens, inserted on the calyx).
430 " XIII. Polyandria (with twenty or more stamens, inserted on the receptacle).
431 " XIV. Didynamia (stamens in each flower of two lengths).
432 " XV. Tetradynamia (four long and two short stamens in each flower).
433 " XVI. Monadelphia (filaments of stamens united into a complete ring).

434 "Class" XVII. Diadelphia (filaments united in two sets).

435 " XVIII. Polyadelphia (filaments united in three or more sets).

436 " XIX. Syngenesia (anthers united around the style).

437 " XX. Gynandria (stamens and pistils united).

438 " XXI. Monoecia (stamens and pistils in different flowers of the same plant).

439 " XXII. Dioecia (stamens and pistils on different plants).

440 " XXIII. Polygamia (stamens and pistils may be in part in the same flower, but also in part in different flowers of the same individual).

441 " XXIV. Cryptogamia (flowerless plants).

SUBDIVISION IV. NATURAL SYSTEM OF A. L. DE JUSSIEU, A. D. 1789.

442 A. ACOTYLEDONES (WITHOUT COTYLEDONS): Algae, fungi, mosses, ferns, Naiadaceae. (The last two groups really *have* cotyledons.)

B. MONOCOTYLEDONES (FLOWERING PLANTS WITH ONE COTYLEDON).

443 *a. Stamens Hypogynous (inserted below the ovary).*
444 *b. Stamens Perigynous (inserted around the ovary).*
445 *c. Stamens Epigynous (inserted upon the ovary).*

C. DICOTYLEDONES (FLOWERING PLANTS WITH TWO SEED-LEAVES).

a. Apetalae (flowers without petals).
446 Stamens Hypogynous.
447 Stamens Perigynous.
448 Stamens Epigynous.

b. Monopetalae (petals united).
449 Corolla Hypogynous.
450 Corolla Perigynous.
451 Corolla Epigynous.

c. Polypetalae (petals distinct).
452 Stamens Hypogynous.
453 Stamens Perigynous.
454 Stamens Epigynous.

455 *d. Diclines Irregulares (stamens and pistils on different plants).*

SUBDIVISION V. NATURAL SYSTEM OF A. P. DE CANDOLLE, A. D. 1819.

A. VASCULARES (PLANTS WITH VASCULAR BUNDLES).

a. Exogenae (bundles in a ring, stem growing at circumference).

456 Diplochlamydeae (flowers with both calyx and corolla).

457 Monochlamydeae (perianth simple, flowers apetalous).

b. Endogenae (bundles scattered, stem growing at center).

458 Phanerogamae (with flowers): Monocotyledons.

459 Cryptogamae (without flowers): Ferns, horsetails, club mosses.

B. CELLULARES (WITHOUT VASCULAR BUNDLES).

460 *a. Foliaceae (with leaves)*: Liverworts, mosses.

461 *b. Aphyllae (without leaves)*: Algae, fungi.

SUBDIVISION VI. NATURAL SYSTEM OF A. BRONGNIART, A. D. 1843.

A. CRYPTOGAMAE (FLOWERLESS, BUT NOT AS BRONGNIART MISTAKENLY SUPPOSED, ASEXUAL).

462 *a. Amphigenae (without stem and leaf):* Algae, fungi.

463 *b. Acrogenae (leaf and stem differentiated):* Mosses, fern-plants.

B. PHANEROGAMAE (WITH FLOWERS).

a. Monocotyledones.

464 Albumenosae (seeds with endosperm).

465 Exalbumenosae (without endosperm).

b. Dicotyledones.

466 Angiospermae (seeds enclosed in ovary): Pinks, buttercups, roses, mustards, daisies, etc.

467 Gymnospermae (seeds not in an ovary—the *Gymnosperma* of Robert Brown, 1827, and Endlicher, 1840): Cycads, conifers.

SUBDIVISION VII. NATURAL SYSTEM OF ALEXANDER BRAUN, A. D. 1864.

A. BRYOPHYTA.

468 *a. Thallodea (without leaves)*: Algae, fungi.

469 *b. Thallophyllodea:* Charas, liverworts, mosses.

B. CORMOPHYTA (WITH STEM AND ROOT).

470 *a. Phyllopterides:* Ferns, horsetails.

471 *b. Maschalopterides:* Club mosses.

472 *c. Hydropterides:* Water-Ferns.

C. ANTHOPHYTA (BEARING FLOWERS).

473 *a. Gymnospermae.*

b. Angiospermae.

474 *Monocotyledones.

475 **Dicotyledones.

SUBDIVISION VIII. NATURAL SYSTEM OF A. W. EICHLER, A. D. 1883.

A. CRYPTOGAMAE (FLOWERLESS).

a. Division I. Thallophyta.

476 *Class I. Algae (with chlorophyll).

477 **Class II. Fungi (without chlorophyll).

b. Division II. Bryophyta.

478 *Group I. Hepaticae (scale mosses).

479 **Group II. Musci (mosses).

c. Pteridophyta (fern-plants).

480 *Class I. Equisetinae (horsetails).

481 **Class II. Lycopodinae (club mosses).

482 ***Class III. Filicinae (ferns).

B. PHANEROGAMAE (WITH FLOWERS).

483 *a. Division I. Gymnospermae.*

b. Division II. Angiospermae.

484 *Class I. Monocotyleae (with one cotyledon).

**Class II. Dicotyleae.

485 †Subclass I. Choripetalae (petals distinct).

486 ††Subclass II. Sympetalae (petals united).

SUBDIVISION IX. NATURAL SYSTEM OF A. ENGLER (SYLLABUS, 5TH ED.), 1907. See p. 17.

The first ten primary "Divisions" of Engler's System cannot be adequately illustrated in a garden such as this and are therefore omitted. They are:

A. Myxomycetes, B. Schizophyta, C. Flagellatae, D. Dinoflagellatae, E. Zygophyceae, F. Chlorophyceae, G. Charales, H. Phaeophyceae, I. Rhodophyceae, J. Eumycetes. These ten groups together make up the *Thallophyta* of Eichler.

The names of the groups given below, i. e. *Division, Subdivision, Class* and *Series*, each, as a rule, with its own peculiar ending, are those used consistently by Engler for the successive portions of the vegetable kingdom, to indicate the grade of each group. e. g. *Class* names usually end with *ales, Series* names with *ae*.

K. DIVISION XI. ARCHEGONIATAE (WITH ARCHEGONIA): Mosses, fern-plants.

a. Subdivision I. Bryophyta.

487 *Class I. Hepaticae (liverworts): 3 series, 5 families, 145 genera, 4,000 species. Distribution cosmopolitan.

488 **Class II. Musci (mosses): 3 subclasses, 58 families, 450 genera, 12,000 species. Cosmopolitan in distribution.

b. Subdivision II. Pteridophyta (fern-plants).

*Class I. Filicales (ferns).

489 Series I. Filicales Leptosporangiatae: Ferns, filmy ferns, flowering ferns, etc. Of 10 families, 234 genera, 3,400 species. Distribution cosmopolitan, especially tropical, only a few species in Africa. The family Polypodiaceae with 2,800 species.

490 Series 2. Marattiales: *Marattias*, *Danaeas*, *Angiopteris*, etc. Of 1 family, 5 genera, 50 species. Strictly tropical.

491 Series 3. Ophioglossales: Adder's tongues, grape ferns. Of 1 family, 3 genera, 48 species. Cosmopolitan in distribution.

492 **Class II. Equiesetales: Horsetails. Of 1 family, 1 genus, 24 species. Widely distributed, fewer in the southern hemisphere.

***Class III. Lycopodiales.

493 Series 1. Lycopodiales Eligulatae: Club mosses, ground pines. 2 families, 4 genera, 105 species. Widely distributed, many American, but few African.

494 Series 2. Lycopodiales Ligulatae: *Selaginellas.* quillworts. 2 families, 2 genera, 560 species. Widely distributed, largely tropical.

L. DIVISION XII. SPERMATOPHYTA (SEED-PLANTS, OR FLOWERING PLANTS).

a. Subdivision I. Gymnospermae (seeds not enclosed).

495 Class I. Cycadales: Sago palms. 1 family, 9 genera, 90 species. Tropical or sub-tropical in distribution.

496 Class II. Ginkgoales: Maidenhair trees. 1 family, 1 genus, 1 species. Found in Western China only.

497 Class III. Coniferae: Pines, spruces, hemlocks, cedars. 2 families, 33 genera, 370 species. Chiefly in north and south temperate zones, few in the tropics.

498 Class IV. Gnetales: *Gnetums*, *Ephedras*. Of 1 family, 3 genera, 36 species. Tropical and subtropical.

b. Subdivision II. Angiospermae (seeds enclosed).

*Class I. Monocotyledoneae (with one seed-leaf).

499 Series 1. Pandanales: Screw pines, cat-tails, *Sparganiums*. Of 3 families, 4 genera, 240 species. Distribution cosmopolitan.

500 " 2. Helobiae. Pondweeds, eel-grasses, water plantains. Of 7 families, 45 genera, 280 species. Cosmopolitan.

501 " 3. Triuridales: A single family of 2 genera and 20 species. Tropical saprophytes.

502 " 4. Glumiflorae: Grasses, bamboos, sedges. Of 2 families, 378 genera, 6,100 species; Gramineae with 3,500 species. Distribution universal.

503 " 5. Principes: Palms. A single family of 128 genera, 1,200 species. Distributed around the earth in tropics and subtropics.

504 " 6. Synanthae: *Cyclanthuses*, *Carludovicas*. A single family, 5 genera, 44 species. In tropical America.

505 " 7. Spathiflorae: *Callas*, *Caladiums*, duckweeds. Of 2 families, 108 genera, 920 species. Cosmopolitan, few in Australia.

506 " 8. Farinosae: *Tradescantias*, pineapples, pickerel weeds. Of 13 families, 119 genera, 2,200 species. Widely distributed, chiefly in tropical America.

507 " 9. Liliiflorae: Lilies, *Amaryllises*, *Irises*. Of 8 families, 355 genera, 4,600 species; Liliaceae 2,600 species. Cosmopolitan.

508 " 10. Scitamineae: Bananas, gingers, *Cannas*. Of 4 families, 43 genera, 1,200 species. Tropical, largely African and Asiatic.

509 Series 11. Microspermae: *Burmannias*, orchids. Of 2 families, 419 genera, 6,000 species. Cosmopolitan, especially in warmer regions.

**Class II. Dicotyledoneae (with two seed-leaves).

†Subclass I. Archichlamydeae. (Including *Apetalae* and *Polypetalae*, i. e. sepals and petals wanting, or, if present then distinct.)

510 Series 1. Verticillatae: Ironwoods. A single genus, 25 species. Native to East Indies and Australia.

511 “ 2. Piperales: Lizard's tails, peppers. Of 4 families, 16 genera, 1,050 species. Nearly all tropical.

512 “ 3. Salicales: Poplars, willows. Of 1 family, 2 genera, 188 species. North temperate zone, a few tropical.

513 “ 4. Myricales: Sweet gales. Of 1 family, 1 genus, 55 species. Temperate and sub-tropical.

514 “ 5. Balanopsidales: Of 1 genus, 7 species. Australian shrubs and trees.

515 “ 6. Leitneriales: Of 1 genus, 2 species. Southeastern United States.

516 “ 7. Juglandales: Walnuts, hickories. Of 1 family, 6 genera, 33 species. Chiefly north temperate.

517 “ 8. Batidales: A single species of shrub. On tropical seacoasts.

518 “ 9. Julianales: Of 1 family, 2 genera, 5 species. In Mexico and Peru.

519 “ 10. Fagales: Beeches, birches, chestnuts, oaks. Of 2 families, 11 genera, 417 species. Chiefly north temperate and East Indian, none in Africa.

520 “ 11. Urticales: Elms, mulberries, figs, nettles. Of 3 families, 110 genera (37 monotypic), 1,500 species. Widely distributed.

521 “ 12. Proteales: *Proteas*, silk oaks, *Banksias*. Of 1 family, 50 genera, 1,100 species. Chiefly Australian and S. African, a few S. American and Asiatic.

522 Series 13. Santalales: Sandalwoods, mistletoes, *Balanophoras*. Of 7 families, 88 genera, 940 species. Widely distributed, chiefly tropical.

523 “ 14. Aristolochiales: Birthworts, wild gingers, *Rafflesias*. Of 3 families, 24 genera, 230 species. Widely distributed, chiefly tropical.

524 “ 15. Polygonales: Docks, knotweeds, buckwheats. Of 1 family, 30 genera, 750 species. Chiefly north temperate, a few tropical.

525 “ 16. Centrospermae: Goosefoots, four-o'clocks, *Portulaccas*, pinks. Of 9 families, 265 genera (118 monotypic), 3,100 species (Caryophyllaceae 1,300 species). Cosmopolitan, many halophytes.

526 “ 17. Ranales: Pond lilies, buttercups, *Magnolias*, laurels. Of 16 families, 236 genera, 4,000 species. Chiefly north temperate and tropical.

527 “ 18. Rhoeadales: Poppies, fumitories, capers, mustards. Of 6 families, 278 genera, 2,050 species. Widely distributed, largely north temperate and tropical.

528 “ 19. Sarraceniales: Pitcher plants, sundews. Of 3 families, 10 genera (5 monotypic), 135 species. Widely distributed, largely bog plants and epiphytes.

529 “ 20. Rosales: Stonecrops, *Hydrangeas*, sweet gums, sycamores, roses, pulses. Of 17 families, 700 genera, 10,750 species. Universally distributed. The Leguminosae, with 8,000 species, is perhaps the most important family of Dicotyledons.

530 “ 21. Geraniales: *Geraniums*, *Oxalises*, nasturtiums, rues, oranges, *Polygalas*, spurges. Of 20 families, 538 genera, 9,050 species. Widely distributed, many families, largely tropical; Euphorbiaceae with 4,500 species.

531 Series 22. Sapindales: Boxes, sumachs, hollies, maples, horsechestnuts, jewelweeds. Of 20 families, 277 genera (110 monotypic), 2,930 species. Widely distributed; many tropical and subtropical.

532 “ 23. Rhamnales: Buckthorns, grapes, woodbines. Of 2 families, 57 genera, 760 species. Widely distributed, many sub-tropical and temperate.

533 “ 24. Malvales: Lindens, hollyhocks, cocoas. Of 8 families, 153 genera, 2,030 species. Widely distributed; largely sub-tropical and temperate.

534 “ 25. Parietales: Teas, St. John's-worts, violets, passion-flowers, *Begonias*. Of 30 families, 273 genera, 4,390 species. Chiefly tropical or sub-tropical.

535 “ 26. Opuntiales: Cactuses, prickly pears. Of 1 family, 20 genera, 900 species. Tropical or sub-tropical American (*Rhipsalis* occurs also in South Africa); desert plants and epiphytes.

536 “ 27. Myrtiflorae: Loosestrifes, pomegranates, mangroves, *Eucalyptuses*, *Melastomas*, evening primroses. Of 17 families, 390 genera, 6,500 species. Widely distributed; Myrtaceae of 2,700 species, chiefly in America and Australia, Melastomaceae of 1,800 species, chiefly in American tropics.

537 “ 28. Umbelliflorae: *Aralias*, ivies, parsleys, dogwoods. Of 3 families, 297 genera, 2,200 species. Widely distributed; chiefly north temperate and tropical.

††Sub-Class II. Metachlamydeae (*Sympetalae* or *Gamopetalae*.—Perianth double, the petals united, sepals united or distinct).

538 Series 1. Ericales: *Pyrolas*, Indian pipes, *Azaleas*, heaths. Of 6 families, 108 genera, (42 monotypic), 1,740 species. Widely distributed; chiefly arctic, temperate, and in mountains of tropics.

539 Series 2. Primulales: Primroses, *Cyclamens*, sea lavenders, *Plumbagos*. Of 4 families, 66 genera, 1,830 species. Widely distributed; largely north temperate and tropical. The Plumbaginaceae include many halophytes.

540 " 3. Ebenales: Guttaperchas, ebonies, persimmons. Of 4 families, 43 genera, 1,090 species. Chiefly tropical and sub-tropical.

541 " 4. Contortae: Ashes, olives, gentians, dogbanes, milkweeds. Of 6 families, 466 genera, 4,250 species. Widely distributed in warmer regions; Asclepiadaceae with 1,700 species, of these 500 species, mostly xerophytic, in Africa.

542 " 5. Tubiflorae: Morning glories, dodders, *Verbenas*, mints, nightshades, figworts, bladderworts. Of 20 families, 910 genera, 14,300 species. Widely distributed; largely sub-tropical and temperate. Labiatae with 3,000 species., Scrophulariaceae 2,600 species.

543 " 6. Plantaginales: Plantains. Of 1 family, 3 genera, 203 species. Widely distributed; chiefly temperate. *Plantago* with 200 species.

544 " 7. Rubiales: *Cinchonas*, coffees, honeysuckles, teasels. Of 5 families, 375 genera, 5,280 species. Widely distributed; largely tropical, north temperate and Andine. Rubiaceae with 346 genera, 4,500 species.

545 " 8. Campanulatae: Gourds, bluebells, *Lobelias*, golden-rods, *Chrysanthemums*, thistles. Of 6 families, 970 genera, 14,150 species. Distribution universal. Compositae with 806 genera, 12,000 species.

DIVISION III. SELECTED FAMILIES: Illustrating the differences in size, in variety of structure, and in geographical distribution found in different families.

546 A. GINKGOACEAE—Of a single genus with but one species, found only in Western China.

547 B. SAURURACEAE—A small family of wide but local distribution. Of three genera and four species. One genus in Eastern North America and Eastern Asia, one in California and one in Eastern Asia only.

C. LILIACEAE—A large monocotyledonous family of cosmopolitan distribution. Of 197 genera, 2,600 species.

548 *a.* *Subfamily Melanthioideae:* Bog-asphodels, false hellebores, autumn crocuses, bellworts. Of 36 genera, 165 species. Cosmopolitan in distribution.

549 *b.* " *Herrerioideae:* A single genus of 3 species, in Brazil.

550 *c.* " *Asphodeloideae:* Asphodels, day lilies, New Zealand flax, *Aloes*. Of 64 genera, 600 species. Widely distributed, largely in Australasia and South Africa.

551 *d.* " *Allioideae:* Onions, garlics, chives. Of 21 genera, 370 species. Widely distributed, chiefly north temperate.

552 *e.* " *Lilioideae:* Lilies, dog's-tooth violets, tulips, squills, hyacinths. Of 27 genera, 575 species. Widely distributed in the northern hemisphere and Africa.

553 *f.* " *Dracaenoideae: Yuccas*, dragon-trees, bowstring hemps. Of 9 genera, 105 species. Distributed widely but not in South America.

554 *g.* " *Asparagoideae: Asparagus*, lily of the valley, Solomon's seals. Of 27 genera, 210 species. Distributed from North America to South Africa and East Indies.

555 *h.* " *Ophiopogonoideae: Liriopes* and *Ophiopogons*. Of 4 genera, 23 species. In tropical Africa and Asia.

556 *i.* " *Aletroideae:* Star-grasses. Of 1 genus, 8 species. Eastern N. America and Eastern Asia.

557 *j. Subfamily Luzuriagoideae: Luzuriagas, Lapagerias.* Of 6 genera, 8 species. In southern hemisphere.

558 *k.* " *Smilacoideae:* Green Briars, sarsaparillas. Of 3 genera, 210 species. Widely distributed; chiefly north temperate and tropical, many S. American.

D. COMPOSITAE—A large family of Dicotyledonous plants. Universally distributed. Of 806 genera, 12,000 species; the largest family of flowering plants, containing about one-tenth of all known species of the latter.

a. Tubiflorae (disk flowers with tubular corollas, marginal flowers only are ligulate.)

559 Tribe 1. Vernonieae: Iron weeds, elephant's foot. Of 42 genera, 600 species. Cosmopolitan; chiefly American.

560 " 2. Eupatorieae: Thoroughworts and *Ageratums.* Of 42 genera, 840 species. Almost entirely N. and S. American; a few in Africa and Asia.

561 " 3. Astereae: Golden-rods, daisies, *Asters.* Of 100 genera, 1,260 species. Cosmopolitan; chiefly in temperate zones of N. and S. America.

562 " 4. Inuleae: Everlastings, cudweeds, elecampanes, Edelweiss. Of 151 genera, 1,400 species. Cosmopolitan; many African, few S. American.

563 " 5. Heliantheae: *Ambrosias,* cockleburs, sunflowers, *Dahlias.* Of 143 genera, 1,360 species. Cosmopolitan; many Mexican.

564 " 6. Helenieae: The sneezeweeds. Of 54 genera, 400 species. Largely in western N., Cent., and S. America; a few in Africa and Australia.

565 " 7. Anthemideae: Yarrows, chamomilles, *Chrysanthemums,* wormwoods. Of 48 genera, 800 species. Cosmopolitan; many in Africa.

566 " 8. Senecioneae: *Arnicas, Cinerarias,* ragweeds. Of 50 genera, 700 species. Cosmopolitan.

567 Tribe 9. Calenduleae: Marigolds. Of 7 genera, 110 species. Mediterranean region, Africa and Terra del Fuego.

568 " 10. Arctotideae: *Ursinias, Berkheyas.* Of 11 genera, 240 species. Chiefly S. African; one species in Asia, one in Australia.

569 " 11. Cynareae: Burdocks, artichokes, thistles. Of 33 genera, 1,340 species. Distributed chiefly from N. Africa to Japan; few American.

570 " 12. Mutiseae: *Dicomas, Mutisias, Perezias.* Of 56 genera, 590 species. Widely distributed; chiefly in the Andes of S. America.

b. Liguliflorae (all the flowers of the head with ligulate, or strapshaped corolla).

571 Tribe 13. Cichorieae: Chicories, dandelions, lettuces, hawk-weeds. Of 61 genera, 1,320 species. Universally distributed; more largely in northern hemisphere.

SECTION IV. ECONOMIC PLANTS.

Man is dependent ultimately, like all animals, on green plants for his food. He also makes use of plant parts and plant products in the preparation of clothing, lumber, drugs, dyes and many other useful substances and, finally he uses a great variety of plants for ornament, shade, and for the binding of soil on mountain ranges and sea beaches. The cultivation of useful plants, i. e. agriculture, is the greatest and most universal industry practiced by man.

The series of illustrative plants shown here is made up chiefly of selected useful plants which are cultivated in temperate regions, but includes a few tropical and sub-tropical plants whose fruits or other products are familiar. The variety of plants made use of locally in the various regions of the globe is surprisingly great.

DIVISION I. USEFUL PLANTS (yielding useful products).

A. YIELDING FOODS (STARCHES, OILS, PROTEIDS).

600 *a. Cereals (starchy seeds).*

601 *b. Legumes (seeds with starch and proteid).*

602 *c. Nuts and Fruits (starchy or oily).*

603 *d. Rhizomes and Tubers (starchy stems or roots).*

604 *e. Vegetables (succulent roots, stems, leaves or fruits).*

605 *f. Fruits (succulent and sweet or acid).*

606 B. YIELDING SUGARS.

607 C. YIELDING SPICES OR PERFUMES (INCLUDING CONDIMENTS AND FLAVORS).

608 D. YIELDING DRUGS OR STIMULANTS.

609 E. YIELDING BEVERAGES.

610 F. YIELDING FODDER (FORAGE PLANTS).

G. YIELDING OILS.

611 *a. Yielding Fixed Oils.*

612 *b. Yielding Volatile Oils.*

613 H. YIELDING GUMS OR RESINS.

614 I. YIELDING RUBBER.

615 J. YIELDING DYES.

616 K. YIELDING TANNINS.

617 L. YIELDING FIBRES.

618 M. YIELDING OTHER USEFUL PRODUCTS (MISCELLANEOUS).

DIVISION II. ORNAMENTAL PLANTS (Yielding Ornamental Flowers): A series of cultivated flowers, showing the origin and natural relationship of the chief horticultural types, in three selected genera.

a. The Genus Dianthus: The Pinks. Of 230 species. Distributed from Cape Colony to Germany, Siberia and Japan; chiefly Mediterranean.

619 *Subgenus I. *Carthusianastrum* (flowers in clusters, usually cymes or heads): Sweet William, Deptford Pink. (*D. cinnibarinus, D. cruentus, D. babbatus, D. Armeria*).

620 **Subgenus II. *Caryophyllastrum* (flowers solitary or in pairs): Scotch Pink, Carnation, Maiden Pink, Chinese Pink. (D. *plumarius, D. superbus, D. Caryophyllus* [3 varieties], *D. Chinensis, D. Ch. Heddewigii, D. Ch. Imperialis*).

b. The Genus Rosa (*Subgenus Eurosa*): Roses. (The only other Subgenus, *Hulthemia*, has but a single species, *R. Persica*, with simple leaves, growing in Asia. It is rarely cultivated). The genus contains 100 species, in the north temperate zone and the mountains of the tropics.

*Cultivated species of the Rose, arranged under the natural Sections of the genus (from Bailey's Cyclopedia of Horticulture).

621 Section I. Systylae: Prairie Rose, Memorial Rose, Musk Rose. (*R. multiflora, R. setigera, R. Wichuriana, R. arvensis capreolata, R. moschata*).

622 " II. Stylosae: *R. stylosa.* (Rarely cultivated, not shown here).

623 " III. Indicae: Bengal Roses, Bourbon Roses, Tea Roses. (*R. Chinensis, R. Ch. fragrans, R. Ch. Indica, R. Ch. semperflorens, R. Ch. Manetti, R. Ch. viridiflora, R. Noisettiana, R. Borbonica,* (the two latter are perhaps hybrids of *R. Ch.* X *R. sp.?*)

624 " IV. Banksiae: Banks' Rose (*R. Banksiae lutea plena*).

625 " V. Gallicae: Provence Rose, Moss Rose, Damask Rose. (*R. Gallica, R. Damascena*).

626 " VI. Caninae: Sweetbrier, Dog Rose. (*R. rubiginosa, R. canina* [the latter often used for grafting stock,] *R. villosa*).

627 " VII. Carolinae: Carolina Rose. (*R. Carolina, R. lucida, R. humilis*).

628 " VIII. Cinnamomeae: Cinnamon Rose. (*R. cinnamomea, R. rugosa rubra plena*).

629 " IX. Pimpinellifoliae: Scotch Rose. (*R. spinosissima altaica*).

630 " X. Luteae: Yellow Rose. (*R. hemisphaerica plena*).

631 " XI. Sericeae. (*R. sericea,*—omitted in the Garden).

632 " XII. Minutifoliae. (*R. minutifolia,*—not shown in Garden).

633 " XIII. Bracteatae: Macartney Rose. (*R. bracteata*).

634 " XIV. Laevigatae: Cherokee Rose. (*R. laevigata*).

635 " XV. Microphyllae. (*R. microphylla*).

**Types of Hybrid Roses, with their probable parents.

636 Polyantha Roses: Hybrids of *R. multiflora* X *R. Chinensis.* (Baby Rambler, Etoile d'Or, *R. Polyantha grandiflora*).

637 Rambler Roses: Hybrids of *R. multiflora* X *R. sp.* (Crimson Rambler, Yellow Rambler, White Rambler).

638 Hybrid Perpetual Roses: Hybrids of *R. Chinensis* X *R. Gallica,* or X *R. Damascena.* (Ulrich Brunner, Frau Karl Druschki, Paul Neyron, Prince Camille de Rohan, Magna Charta).

639 Hybrid Tea Roses: Hybrids of *R. Chinensis fragrans* X Hybrid Perpetuals. (La France, Kaiserin Augusta Victoria, Magnafrano, Belle Siebrecht).

640 Hybrid Rugosa Roses: Hybrids of *R. Chinensis* X *R. rugosa.* (*R. rugosa calocarpa*).

641 Japanese Roses: Hybrids of Hybrid Teas X *R. rugosa.* (Madame Georges Bruant).

642 Rosa Fortuneana: Hybrid of *R. Banksiae* X *R. laevigata.* (*R. Fortuneana*).

643 Rubella Rose: Hybrid of *R. spinosissima myriacantha* X *R. pendulina.* (*R. rubella*).

c. The Genus Chrysanthemum: The Corn Marigolds, Marguerites, Feverfews, *Chrysanthemums.* Of 200 species. Distributed through the northern hemisphere, especially in Eurasia; a few species occur south of the equator in Africa.

*Types of wild species, with their cultivated forms, arranged in the natural *Sections* of the genus (according to Engler and Prantl, Die natürlichen Pflanzenfamilien).

†Annuals.

644 Section I. Pinardia: Corn Marigolds. (*C. coronarium, C. viscosum, C. segetum*).

645 " II. Ismelia: Summer Chrysanthemums. (*C. carinatum*).

646 " III. Coleostophus: (*C. Myconis*).

647 " IV. Ammanthus: (2 species in Crete).

††Perennial Herbs or Half-shrubs.

648 Section V. Argyranthemum: Marguerites. (*C. frutescens, C. anetiifolium*).

649 Section VI. Pyrethrum: Ox-eye Daisies, Mint Geraniums, Feverfews. (*C. Leucanthemum*, *C. montanum*, *C. Parthenium*, *C. Balsamita*, *C. roseum*, *C. uliginosum*, *C. indicum*, *C. sinense* Sabine [*C. morifolium* Ramatuelle]. The last species was described from a cultivated, double form. Its wild progenitor is not known with certainty).

650 " VII. Gymnocline: (*C. macrophyllum*).

651 " VIII. Tanacetum: Tansies. (*C. vulgare*).

652 **Hybrid Chrysanthemums: Pompon Chrysanthemums, Autumn, or large-flowered Chrysanthemums. Hybrids of *C. indicum* X *C. sinense.* (The innumerable florist-varieties of pompons and large-flowered Chrysanthemums are apparently entirely the product of the intercrossing of the two species named. The exact origin or ultimate parentage of most varieties is not known with any certainty).

The examples shown illustrate several varieties of pompons and some of the chief types of structure and color among the large-flowered Chrysanthemums. Among the latter, e. g., are shown the single-flowered or Anemone types and those with incurved and with reflexed ray-flowers, each in several colors.

NOTES IN BOTANY AND ZOOLOGY

THE STEM OFFSHOOT IN ERYTHRONIUM PROPULLANS, GRAY*

[Preliminary Note]

By F. H. Blodgett

During the examination of the several species of Erythronium in connection with a study of the bulb development in the genus, the forms of the Mississippi valley and Eastward were found to resemble each other in regard to this phase of the life-history with one of the species showing special features in development. In the development of the three other species of this area (i. e. *E. americanum, E. albidum, E. mesochoreum*), the immature plants form their new bulbs each year as a rule, at a distance from the active bulb, at the end of a stalk or runner of varying lengths and directions of growth; this habit ceasing with the attainment of mature condition.

In *E. propullans*, however, the mature plants have the runner habit more highly developed than the immature plants, and this feature is one of the specific characteristics.†

The mature plants have a length of six to ten inches from base of bulb to the flower, the peduncle, petiole sheath and stem being about equal in length with the soil line at the base of the free peduncle, at four to seven inches from the bulb. From the side of the petiole sheath, about midway from soil line to bulb, the stem offshoot pushes out, and during its development grows to be from one to four inches in length in different specimens.

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*Amer. Nat., 1871; pp. 298-300; fig. 74.

†Specimens of this species were secured in 1908 through the kind co-operation of Dr. C. O. Rosendahl and of Mr. C. S. Schofield, and in 1909 of Dr. Rosendahl and also of Miss Antoinette Robinson; to their kind assistance the author is much indebted.

Enclosed within the walls of the offshoot at its tip, is the bud which is the bulb rudiment. At first the bud has only one scale leaf about the growing point, but by the time it reaches its full growth and becomes a bulb, there are usually two scale leaves present. The walls of the enclosing tip of the offshoot become the husk of the bulb, the rest of the offshoot disintegrates. The aerial portions of the plants wither as the fruit ripens, as is the case throughout this group of species, leaving the capsule prostrate on the soil.

The bud originates at the base of the peduncle, in the axil of one of the leaves, and is first to be seen about the first of October. It remains little developed until the growth of the plant is practically completed, just before flowering, in May, when it bursts through the walls of the petiole sheath and elongates into the offshoot. The bud becomes enclosed by the surrounding tissues by the upward growth of the lowest side, but an opening persists. In the elongation of the tissues to form the offshoot, the cavity so formed continues as a tube connecting the space immediately about the bud with the opening in the side of the peduncle. The offshoot is built up from the tissue forming the base of the peduncle, through growth localized on one side of the axial line, and immediately behind the insertion of the bud. The vascular system of the peduncle supplies, through branches, the necessary strands for the offshoot. The bundles in the third (of a cross section) opposite the bud continue with little hindrance into the flower stalk, but the rest of the bundles are either diverted entirely, or throw off branches to supply the growing offshoot. The general relation of these bundles is shown in the figures. The fact that the offshoot derives its vascular supply by diversion of that of the peduncle may have considerable influence in the reduction in size noticeable in the flowers of this form in contrast to the rest of the genus.

While the offshoot has been producing a bulb and the deposit of starch in the terminal bud, the bulb of the whole plant has been renewed by the similar growth of a bud within the active bulb, an outgrowth or runner being produced in many cases, but the new bulb frequently being formed within the space afforded by the withering of the preceding one. Thus from each mature plant there are obtained two individuals at the close of the season, as the result of the vegetative propagation, in contrast to one only as customary in the other species.

EXPLANATION OF PLATE

(Reduced one-half from original scale)

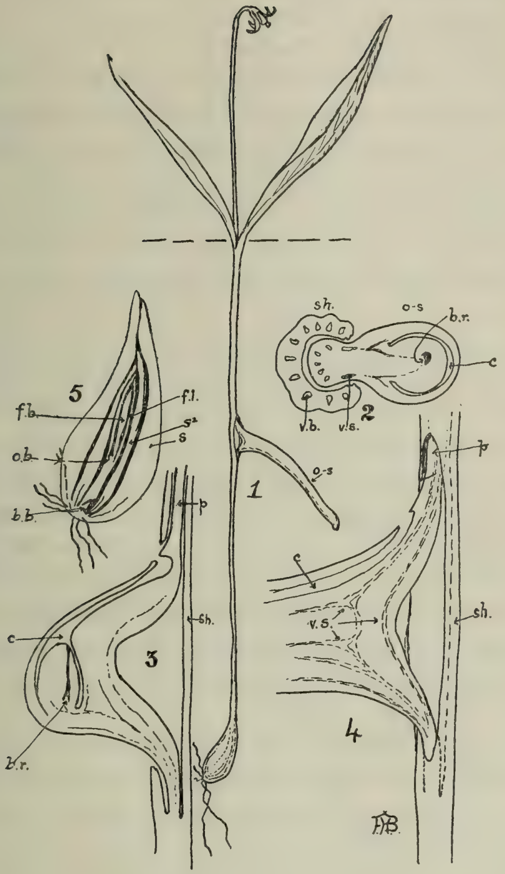
Figure 1. Entire plant of *E. propullans* showing relative positions of bulb and offshoot, and small size of flower. x 1; o-s. offshoot.

Figure 2. Cross section of young offshoot. x 8; o-s, offshoot; sh., sheath; v. b., vascular bundles of sheath; v. s., same in offshoot; b. r., bulb rudiment growing-point; c., cavity about bulb rudiment.

Figure 3. Vertical section of slightly older offshoot. x 6.

Figure 4. Vertical section of base of offshoot, showing paths of vascular strands, in older stage than before. x 7; p., peduncle; v. s. vascular strands.

Figure 5. Longitudinal section of bulb in October. x 5; s. 1st scale leaf; s′, second scale leaf; f. l., foliage leaf; f. b., flower bud; o. b., offshoot bud; b. b., bud of bulb by which current bulb will be renewed.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THE NATURE OF THE EMBRYO SAC OF PEPEROMIA*

BY W. H. BROWN

The archesporium of *Peperomia sintensii* and *P. arifolia* arises as a single hypodermal cell, which cuts off a single parietal cell and then forms the embryo sac directly.

The first division of the embryo sac nucleus is heterotypic. The nucleus goes into synapsis. This stage is followed by an apparently continuous spirem. This splits longitudinally, but later the two halves come together again. The chromosomes are formed from loops in the spirem. When these divide, they seem to separate two parts of the spirem, which were originally placed end to end.

In *P. pellucida* cell plates are formed on the spindles of the first two divisions. In the first division of *P. sintensii* and *P. arifolia* this plate grows into an evanescent wall which extends across the embryo sac and separates the nuclei. This wall is variable in position and generally disappears before the next division, but may persist as a remnant after it. At the second division in *P. sintensii* and *P. arifolia* plates are formed on both spindles. One soon disappears, while the other forms a wall separating one nucleus from the other three. This wall is variable in position, and all signs of it are usually lost before the next division.

In the third division of the embryo sac nucleus of *P. sintensii,* no cell plates were seen on the spindles, but in the last division, giving rise to sixteen nuclei, cell walls are formed on all the spindles. These walls cut off, against the embryo sac walls, one of each of the eight pairs of nuclei, and leave the other eight free in the cyto-

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*Abstract of a paper published in the *Botanical Gazette* 46: 445-460, December, 1908.

plasm. These free nuclei fuse to form the endosperm nucleus. The egg and a nucleus with the position of a synergid are cousins. The other six nuclei which are cut off against the embryo sac wall finally degenerate.

The presence of the reducing division in the primary embryo sac nucleus and the formation of evanescent walls in the first and second divisions seem to indicate that the sac is composed of the descendants of the nuclei of four megaspores, and that the primary embryo sac nucleus is a mother cell and not a megaspore nucleus.

If the walls corresponded to those of prothallial cells, we should expect to find them in the third division, but here not even a cell plate was seen. Besides this, the nearest phylogenetic relatives in which the first divisions of a megaspore result in a cellular structure, are found among the leptosporangiate Filicales, which are not supposed to be in the line of descent of the angiosperms, and it does not seem probable that Peperomia has reverted to the characters of an ancestor as remote as one in which we should find the first divisions of the megaspore giving rise to a cellular structure.

This position is strengthened when we consider the four-nucleate stage of *P. ottoniana.* Here the nucleus which is cut off is considerably larger and surrounded by much denser protoplasm than the other three. The resemblance to the four megaspores of the ordinary angiosperm is quite striking.

The walls formed at the fourth division are probably homologous to those formed at the last division of the usual angiosperm embryo sac.

We are not justified, however, in extending the conception of four megaspores in an embryo sac to all angiosperms in which a row of megaspores is not formed, because we do not know that the division of the mother cell to megaspores may not be omitted and the place of the heterotypic division be changed.

NUCLEAR PHENOMENA IN PYRONEMA CONFLUENS

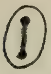
[Preliminary Note]

By W. H. Brown

The form studied agrees perfectly with the taxonomic description of *Pyronema confluens,* but a microscopical study shows that it differs markedly in essential details of development from the form described by Harper. It seems certain, however, that it has been derived from the latter and should probably be regarded as a variety of it.

The structure of the fruit body and of the ascogonium, trichogyne and antheridium is very much like that described by Harper (1900) for *Pyronema confluens.* The ascogonia, however, contain many more nuclei than the antheridia. The trichogynes and antheridia were never found to be connected and often not in contact, while the nuclei of the antheridia degenerate *in situ.* There is, however, little doubt but that the antheridia, in this case, are derived from those of such a form as that described by Harper, in which the nuclei of the antheridium passed over into the ascogonium.

No fusion of nuclei was found in either the ascogonium or the ascogenous hyphæ, except in the cell which swells out to form the ascus. This fusion was of constant occurrence and was the only fusion found in the form studied. An appearance quite like fusion but resulting from division was, however, found frequently in both the ascogonia and ascogenous hyphæ. In the tips of the ascogenous hyphæ the history of the nuclei is quite definite, so that the sequence can be readily followed. The spindle in these cases is intranuclear, and when the chromosomes have become aggregated at the poles (fig. 1) the whole spindle is still surrounded by a clear area. Often, without sepa-



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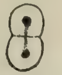

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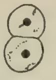

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rating, the nuclei reorganize, and frequently, before the connecting fibres have disappeared, a wall appears to come across the clear space which surrounds the spindle (fig. 2). Later, the fibres disappear, giving the appearance shown in figure 3. The separation of the two nuclei gives an appearance very much like what Claussen (1907) has described in *Pyronema confluens* as the separation of sexual nuclei, and the question arises as to whether the phenomena in both cases may not be due to division.

The separation just described is also much like an early stage of fusion, and was at first mistaken for such. If the two nuclei are viewed at such an angle that the wall separating them is parallel to the plane of the section, this wall would be hard to see and the two nucleoli might appear to be in the same nucleus. It seems possible that these appearances may have been mistaken by some other workers for fusing nuclei, though of course it is not safe to apply the results in this form to other forms and especially to those which have a functional antheridium.

At the tip of the ascogenous hyphæ were found two nuclei which, when their origin could be determined, were formed by the division of a single one. The tip of the ascogenous hyphæ becomes hook-shaped and each of the nuclei divides. A wall usually comes in between the nuclei of each pair. This leaves the ultimate cell uninucleate and the penultimate binucleate. In this case the ascus is formed from the binucleate penultimate cell. It is probable that in some cases the ultimate cell is binucleate and that the ascus is formed from it. When the penultimate cell is binucleate, the two nuclei fuse to form the primary ascus nucleus. The uninucleate ultimate cell may then grow out to form a new ascus.

The first division of the primary ascus nucleus is preceded by what appears to be synapsis and a split spireme. At anaphase four or five chromosomes pass to each pole, and this number is maintained throughout the three divisions of the ascus, so that each of the eight spores receives four or five chromosomes. The number of chromosomes was never more than five or less than four, and it is probable that it will be found to be constantly five. There is no permanent attachment of the chromosomes to the centrosomes, which, at the first division, appear to arise from the nucleolus. There is then no such arrangement for a double longitudinal splitting of the chromosomes as Harper (1905) has described in Phyllactinia. It appears then that the reduced number of chromosomes results from the first division of the primary ascus nucleus and that there is only one reduction in the ascus. This is what would be expected if there were a fusion of nuclei at only one point in the life of the plant.

The excellent work of Harper on *Pyronema confluens* seemed, for some time, to show that there was a fusion of nuclei in the ascogonium and another fusion in the mother-cell of the ascus. Claussen (1907) found nuclei associated in pairs in the ascogonium, but denied the presence of a fusion at this point. The results recorded in this paper seem to show that there is no fusion of nuclei in the ascogonium of the form studied. These facts, together with the suppression of functional sex organs in many forms, suggest that this first fusion may not take place at all.

If this be true, it seems probable that the fusion of sexual nuclei originally took place in the ascogonium, but later was delayed until some point in the development of the ascogenous hyphæ; that then the fusion of the rather nearly related sexual nuclei was replaced by the fusion of nearer related or even cousin nuclei, as is the case in the asci of many forms; that this has obviated the necessity for functional sexual organs and is connected with their disappearance in many forms.

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PINNA SEMINUDA

[Preliminary Paper]

By B. H. Grave

I began the study of the anatomy of *Pinna seminuda* at the suggestion of Professor W. K. Brooks. It is the largest mollusk found at Beaufort, North Carolina, and, on account of its size, is a good form for dissection. The shells of the largest specimens measure about twelve inches in length, eight inches in width, and two and one-half inches in thickness.

THE SHELL

The shell of Pinna consists, for the most part, of a single layer, which is secreted by the edge of the mantle. It corresponds to the middle layer of the typical lamellibranch shell, and, on account of its structure, is called the prismatic layer. In Pinna, it is well developed and is made up of beautiful prisms, which extend transversely, and seem to run from surface to surface. The anterior third of the shell has an additional layer, secreted by the outer surface of that part of the mantle which lines the shell in this region. It closely resembles the pearly layer of other lamellibranchs, and extends from the anterior end as far posteriorly as the posterior adductor muscle. In the several transverse sections prepared, there is no trace of a horny or cuticular layer, and it seems safe to assume that none is developed.

The outer surface of the shell is studded with tall spines, which have the same structure as the prismatic layer, and like it are secreted by the edge of the mantle. When fully formed, they are between one-half and three-fourths of an inch tall, and, except that they are slightly broader at the base than at the top, have the shape of a half cylinder, the hollow side of which faces the edge of the shell. During the growth period of one of these spines, the edge of the mantle extends beyond the shell and fits into the hollow surface of the spine as a fold or crimp. In time, the shell, by its growth at the edge, extends beyond the spine so that the mantle no longer comes into contact with it. This mode of formation accounts for the fact that the spines are hollow and open towards the growing edge of the shell.

Judging from measurements taken at short intervals, it would seem that the shell grows quite rapidly. A young, vigorous specimen increased one-fourth of an inch in length in the course of three weeks.

While working upon the embryology of Pinna, last summer, I found it necessary to mutilate the shell on one side to obtain the eggs and sperms. This could be done without injury to the soft parts of the animal, and such a mutiliated specimen, when placed in a live box in the harbor, lived perfectly, and began to repair the shell. It was impossible to learn in a few weeks to what extent it could be mutilated without causing the death of the specimen. Individuals were frequently found, which had met with accidents in their natural habitat. For example, a specimen was found which had lost a circular piece, the size of a silver dollar, from the edge of each valve. This lost part had been replaced completely, and, although the patch was thick and rough, it was strong and as good as before, and the specimen was in a healthy condition when found. One frequently finds individuals whose shells have been crushed. Specimens thus mutilated always attempt to mend the shell, but since they are exposed for a time to various enemies, many of them die as a result of their injuries.

THE KIDNEYS

The kidneys are two in number and each consists of a tubular and a glandular portion. They lie between the gills on the ventral side of the body, just anterior to the posterior adductor muscle. They hang down into the mantle chamber, as two dark-colored bags, and are very conspicuous organs, needing no dissection to expose them to view. They are connected with the pericardial chamber above, and open below into the mantle chamber by large tubes, which end at the summits of papillae. The glandular portion forms the prominent sac mentioned above and lies between the two extremities. The whole kidney forms a coiled pouch, stretching between the pericardial chamber and the mantle chamber.

While working with living specimens, I frequently saw quantities of yellowish-brown material expelled from the kidneys. When examined under the microscope, this material proved to consist of very numerous vacuolated cell-like bodies, which were filled with yellowish-brown or reddish-brown globules of excretory matter. After collecting and fixing some of this excreted matter, I strained it with iron-alum haematoxylin to see if there were nuclei present. Although the results obtained so far are not altogether conclusive, I believe that no nuclei are thrown off. Paraffin sections of the glandular portions of the kidney show the epithelial cells to be greatly vacuolated and filled with this excretory matter. The vacuole is located in the outer end of the cell and there is very little protoplasm surrounding it. The nucleus is seen in the basal end of the cell and is surrounded by dense protoplasm. Certain cells show a constriction below the vacuole, as if they were in process of being thrown off. Other cells show this process farther advanced, and appear as if they were drawn out by some force which was stretching them into two. The nuclei in these cells are to be seen in the basal half, and it appears, also, that very little cytoplasm is thrown off with the vacuole. This method of excretion, although uncommon, is not especially wasteful, as would appear from the statements of the two or three investigators who have written upon this subject and maintained that the entire cells are excreted in the mollusks studied by them. Of course, it may take place in some mollusks, but excretion in Pinna is not of that wasteful character.

EXPERIMENTS UPON THE NERVOUS SYSTEM

After reading Dr. Drew's description of his interesting experiments upon the nervous system of *Ensis directus,* I decided to verify his results as far as possible by trying a similar series of experiments upon *Pinna seminuda.* The location of the ganglia and the distribution of the nerves are practically the same in the two lamellibranchs, so that no description of the nervous system of Pinna is given in this paper. It is possible to remove enough of one valve of *Pinna seminuda* to enable one to see the movements of all parts of the body, without injuring the soft parts of the animal in the least. The ganglia, also, lie so near the surface that they may be exposed by very little dissection, and no great injury is inflicted in preparing a specimen for experimentation. A great many of the experiments were performed upon uninjured specimens. The results obtained agree in nearly every particular with Dr. Drew's results, and, since to describe them all would involve repetition, I will speak only of a few which gave additional or slightly different results.

In attempting to learn to what extent nerve impulses can be induced to take courses which could safely be considered unusual, difficulty was experienced in proving that an impulse can go from one cerebral ganglion to the other by way of the cerebro pedal connectives. This was unquestionably demonstrated, however, in a few cases. The cerebral and visceral connectives certainly represent the usual paths of transmission of nerve impulses from one side of the body to the other. It is interesting to see what roundabout courses nerve impulses will take when the natural paths of transmission are severed. This goes to show that the whole body is a unit and all parts closely associated by nerve connections.

In working upon an uninjured specimen, it was noticed that, when the posterior mantle edge was stimulated, the gills, posterior adductor, palps and foot contracted in the order named. There was an interval of fully one-half second between the time of the contraction of the adductor and foot. It was frequently noticed that parts most distant from the point of stimulation were the last to respond. This shows how slowly the nerve impulses are transmitted, and it would not be a difficult task to determine the rate, because the cerebro visceral connective is at least six inches in length.

When the mantle is stimulated at the level of the anterior end of the gills, this part of the gills is the first to respond by contracting. A moment later, the posterior end of the mantle and gills and the adductor muscle may contract in the order named. Sometimes, if the stimulus be weak, only the anterior end of the gills responds, there being no observable effect upon other parts. The nerves are so distributed that the course of the impulse is first to the visceral ganglion, from which a new impulse is sent to the anterior end of the gills, causing the contraction of these organs. From the same ganglion, other impulses may be sent out a fraction of a second later to these other organs, and, although they are located nearer to the visceral ganglion, they contract later. It was noticed that no matter what part of the body is stimulated, the organs in that vicinity are the first to respond, even though the nerve paths to and from the nerve centers involved are longer than to other organs, which contracted later. This indicates that there are definite reflex arcs, or paths of least resistance, established for all parts of the body. This was most obvious when the stimulus was so weak that only the organs in the vicinity of the point stimulated were affected.

The above facts point to the possibility that the nerve impulses may not travel as slowly as is indicated by the difference in time observed in the contraction of organs near the point of stimulation and those more distant. It may be due to the fact that a nerve center sends out impulses to these organs at a slightly later period. In this case, the only way to determine the rate of transmission of an impulse would be to test it directly.

SUMMARY

1. The shell of Pinna consists, for the most part, of one layer, which has the same structure as the prismatic layer of the typical lamellibranch shell. The anterior end of the shell consists of two layers.

2. The spines on the outer surface of the shell are built up by the edge of the mantle, and are similar in structure to the prismatic layer.

3. The shell is regenerated when injured.

4. The excretory matter of the kidneys is deposited in vacuoles in the outer ends of the kidney cells, which vacuoles are afterwards constricted off, but very little protoplasm, if any, and no nuclei are thrown off.

5. Dr. Drew's experiments upon the nervous system of *Ensis directus* were verified and definite reflex arcs were shown to exist.

COLLEGE COURSES FOR TEACHERS

OFFERED BY

THE JOHNS HOPKINS UNIVERSITY

AND

THE WOMAN'S COLLEGE OF BALTIMORE

1909-1910

COMMITTEE IN CHARGE

EDWARD FRANKLIN BUCHNER, Ph. D., *Chairman*,
Professor of Education and Philosophy.

JOHN B. VAN METER, D. D.,
Dean of the Faculty of The Woman's College of Baltimore.

HARRY L. WILSON, Ph. D.,
Professor of Roman Archæology and Epigraphy.

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up and returned to the Chairman of the Committee, on or before September 25, 1909.

INSTRUCTORS IN THE COLLEGE COURSES FOR TEACHERS

Ira Remsen, LL. D., *President*

Henry Wood, Ph. D., Professor of German.	*German*
Herbert Eveleth Greene, Ph. D., Collegiate Professor of English.	*English*
Wilfred P. Mustard, Ph. D., Collegiate Professor of Latin.	*Latin*
Murray P. Brush, Ph. D., Associate Professor of French.	*French*
John C. French, Ph. D., Associate in English.	*English*
Robert Bruce Roulston, Ph. D., Instructor in German.	*German*
William H. Maltbie, Ph. D., Professor of Mathematics in the Woman's College.	*Mathematics*
Eleanor Louisa Lord, Ph. D., Professor of History in the Woman's College.	*History*
William E. Kellicott, Ph. D., Professor of Biology in the Woman's College.	*Biology*

COLLEGE COURSES FOR TEACHERS

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work has been done without any reference to credit toward an academic degree.

The Woman's College also has offered without reference to academic credit special courses of instruction and lectures open to teachers of Baltimore in an effort to serve a larger constituency than its regularly enrolled students.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with the Woman's College of Baltimore, will offer during 1909-1910 courses of instruction to teachers whose vocation prevents their attendance upon college lectures and recitations at the usual hours. It is the primary aim of these courses to provide the teachers in our public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are to be similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in college classes. In order to give further encouragement to teachers in service to carry on extended systematic study, this plan of college courses for teachers also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, towards the degree of Bachelor of Arts.

CO-OPERATION WITH THE WOMAN'S COLLEGE OF BALTIMORE

The plan of co-operation with the Woman's College of Baltimore provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and the Woman's College. These courses will be open to men and women alike, and will be carried on independently of the regular collegiate instruction of the institutions. In the case of women who may desire to become candidates for the baccalaureate degree, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by the Woman's College towards the degree. A similar provision is made by the Collegiate Department of the Johns Hopkins University in the case of those men who desire to proceed to the baccaulaureate degree. Total credits of sixty units or hours are required for graduation in each institution.

The instruction will be conducted as far as possible at the Johns Hopkins University. In some instances, however, classes and laboratory exercises may be held at the Woman's College.

ADMISSION

The requirements for admission to the College Courses for Teachers conform in general to the requirements for matriculation fixed by the Johns Hopkins University in its Collegiate Department, and to the entrance requirements prescribed by the Woman's College of Baltimore. The preparatory training desirable for the successful pursuit of these courses is that represented by the completion of a standard four-year high school course.

Applicants may be admitted to these courses by either of the following means:

1. Passing an examination.
2. Presenting certificates:
    (*a*) Of the College Entrance Examination Board.
    (*b*) Of public and private high schools and normal schools approved by the Committee in charge.
    (*c*) Of work completed in other colleges.

In cases where question may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course.

Applications for admission to these courses must be presented to the Committee in charge of College Courses for Teachers.

ADMISSION WITH REFERENCE TO A DEGREE

Those applicants who wish to become candidates for the degree of Bachelor of Arts in the Johns Hopkins University are referred to the circular descriptive of "The Collegiate Instruction of the Johns Hopkins University," 1909, pp. 48-55, for a detailed statement of the requirements for matriculation. This circular may be had by addressing the Registrar.

Those applicants who desire to become candidates for the same degree in the Woman's College, are referred to the "Program of the Woman's College of Baltimore," 1909, pp. 18-32, for a detailed statement of the corresponding requirements in this institution. This circular may be had by addressing the Registrar.

As a final requirement before the degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree of Bachelor of Arts can be conferred by the Johns Hopkins University upon men only.

ADMISSION TO ADVANCED STANDING

The courses offered for 1909-1910 represent for the most part the work usually required in the first college year. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of these, an effort will be made to arrange for such instruction. In considering applications for advanced standing the Committee will be guided by the regulations in force, in such cases, in the two institutions.

EXPENSES

The charge for instruction will be at practically the same rate per hour as for the undergraduate courses in the Johns Hopkins University and the Woman's College, namely:

Ten Dollars per year for each hour per week. Each course will continue throughout the academic year. Where laboratory fees are required they are additional. Three hours of laboratory work will be charged as one hour of recitation or lecture.

Fees are payable in advance at the office of the Treasurer of the Johns Hopkins University, 712 North Howard Street. Before payment of fees can be made, applicants must receive from the Committee in charge a card stating the courses to be taken. Registration in any class cannot be completed without the payment of the fee.

SESSION

The College Courses for Teachers will open on Tuesday, October 12, 1909, and close on Saturday, June 4, 1910. Each course will include instruction for thirty weeks. Class-room and laboratory exercises will be given in the afternoon from Tuesday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual college recesses at Thanksgiving, Christmas, and Easter.

Applications for admission are to be filed with the Chairman of the Committee in charge of the College Courses for Teachers, Johns Hopkins University, on or before September 25, 1909.

SCHEDULE OF HOURS

(Subject to minor changes at the opening of the courses in order to meet the convenience of students.)

	4.10—5.00 P. M.	5.10—6.00 P. M.
Tuesday	French (Brush) German (Wood) Latin (Mustard)	Biology (Kellicott) English Composition (French) English Literature (Greene) Mathematics (Maltbie)
Wednesday	History (Lord)	
Thursday	French (Brush) German (Wood) Latin (Mustard)	Biology (Kellicott) Mathematics (Maltbie)
Friday	History (Lord)	English Composition (French) English Literature (Greene)
	9.00—10.00 A. M.	10.00 A. M.—1.00 P. M.
Saturday	French (Brush) German (Roulston) Latin (Mustard) Mathematics (Maltbie)	Biology (Kellicott) (Biological Laboratory Woman's College)

THE COURSES OF INSTRUCTION

Any course for which there are fewer than ten applicants may be withdrawn.

The exact amount of credit towards the degree of Bachelor of Arts which will be allowed for successful completion of each of the courses mentioned below, can be determined definitely only at the end of the year.

Biology

This course treats of the characteristics of living organisms, both plant and animal, their constant relations with one another and with the inorganic world, and the development of form, structure, and function in a series of types of increasing complexity. The course concludes with a brief discussion of the theory of organic evolution. Two hours class-work, three hours laboratory work a week. A laboratory fee of $5.00 will be charged to cover the cost of material.

PROFESSOR KELLICOTT. Tuesday, Thursday, 5.10 p. m., and Saturday, 10 a. m. to 1 p. m.

English Composition

The course will include the theory of diction, structure, and the forms of prose composition, with some critical study of selected prose writers. Weekly themes will be required; these will be returned with written criticisms.

DR. FRENCH. Tuesday and Friday, 5.10 p. m.

English Literature

First half-year: The poems of Chaucer; History of English Literature from the seventh century to about 1500.

Second half-year: The poems of Spenser; History of English verse; History of English Literature from the Renaissance to about 1600,—not including the drama.

Professor Greene. Tuesday and Friday, 5.10 p. m.

French

1. Grammar and Composition: Chardenal's *Complete French Course.*

2. Translation: Daudet's *L'Enfant Espion,* and other stories; Augier and Foussier, *Un beau Mariage;* Theuriet, *L'Abbé Daniel;* Pailleron, *Le Monde où l'on s'ennuie;* Balzac, *Scènes de la Comédie humaine;* Corneille, *Horace;* Molière, *Les Femmes savantes, Le Médecin malgré lui;* Victor Hugo, *Ruy Blas.*

3. Private Reading: Fortier, *Histoire de France;* Lamartine, *Scènes de la Révolution française;* De Tocqueville, *Voyage en Amérique.*

4. Exercises in Pronunciation and in Writing from Dictation.

Associate Professor Brush. Tuesday, Thursday, 4.10 p. m., and Saturday, 9.00 a. m.

German

In German, one of two alternative courses will be offered:

1. A course similar to undergraduate German I., consisting of modern prose readings (C. F. Meyer, von Saar, Fulda, Keller, Sudermann), two hours weekly, and prose composition, one hour weekly.

2. Should all the candidates be able to read and write German with some facility, and should they wish to pursue the subject further, with the privilege of substituting course 2 for course 1, a plan of study can be arranged as follows:

a. Readings in modern German drama, to be reported on in the class, with comments and criticism by the instructor. *One hour weekly.*

b. History of the German novel in the Eighteenth century. *One hour weekly.*

c. Written themes in German, involving literary appreciations, and in the elements of German literary style. *One hour weekly.*

Course 1 or 2 will be given, but not both of them. The selection will be made according to the needs of the candidates who present themselves.

Professor Wood and Dr. Roulston. Tuesday, Thursday, 4.10 p. m., and Saturday, 9.00 a. m.

History

This course will deal with the evolution of the characteristic institutions of the Middle Ages; the church; monasticism; the feudal system; the Holy Roman Empire; the struggle between the empire and the papacy; the beginnings of national history in France, England, Germany, and Italy; the rise of the towns and the "third estate"; the Crusades; the rise of the universities and the typical culture of the Middle Ages.

The method of work will be for the most part the so-called "library method," with occasional lectures by the instructor, special reports from members of the class, and some elementary training in the use of source material.

Professor Lord. Wednesday and Friday, 4.10 p. m.

Latin

The class will meet three hours weekly, through the year. One hour weekly will be devoted to Latin Prose Composition (text-book by Gildersleeve and Lodge, 2nd edition). The remaining time will be given to the following authors: Livy (book i and selections, ed. Dennison); Terence (*Phormio,* ed. Laing); Catullus (ed. Merrill). Students will read also privately, for examination, Cicero's *Cato Maior* and one play of Plautus.

PROFESSOR MUSTARD. Tuesday, Thursday, 4.10 p. m., and Saturday, 9.00 a. m.

Mathematics

The first part of the year will be devoted to a study of special topics in Algebra including theory of exponents, theory of logarithms, simultaneous equations, binomial theorem, elements of the theory of equations, and elements of the theory of determinants.

The second part of the year will be devoted to an introductory course in Plane Analytic Geometry including a discussion of the right line and of the circle and other conics as represented by their equations both Cartesian and Polar.

Pre-requisites: Elementary Algebra, Plane Geometry, Plane Trigonometry.

PROFESSOR MALTBIE. Tuesday, Thursday, 5.10 p. m., and Saturday, 9.00 a. m.

CALENDAR, 1909-1910

College Courses for Teachers begin Tuesday, October 12, 1909.

Thanksgiving Day falls on Thursday, November 25, 1909.

The Christmas Recess begins Friday morning, December 24, 1909.

Exercises will be resumed on Tuesday afternoon, January 4, 1910.

Commemoration Day falls on Tuesday, February 22, 1910.

The Spring Recess begins Thursday morning, March 24, and closes Wednesday evening, March 31, 1910.

College Courses for Teachers close Saturday, June 4, 1910.

PROCEEDINGS OF SOCIETIES

Philological Association:

April 23, 1909.—Two hundred and fifty-fourth regular meeting. Professor GILDERSLEEVE in the chair. Attendance, 22.

Egyptian Monasticism. W. W. WOOD.

The Quinquennales. R. V. D. MAGOFFIN.

May 21, 1909.—Two hundred and fifty-fifth regular meeting. Professor GILDERSLEEVE in the chair. Attendance, 28.

A Theory of the Cyclical Four-Stage Development of the Indo-Germanic Arsis. G. D. BROWN, of Princeton University.

A Recent Excavation in Rome. H. L. WILSON. (Read by title).

Scientific Association:

April 7, 1909.—The Bloating of Oysters. C. GRAVE.

Analysis of Sounds. P. H. EDWARDS.

Absorption Spectra of Solutions. W. W. STRONG.

Selection of Food by Unicellular Animals. A. A. SCHAEFFER.

May 12, 1909.—Scientific Method in the Study of Comparative Psychology. Professor R. M. YERKES, of Harvard University.

Historical and Political Science Association:

April 16, 1909.—Van Buren and the Polk Cabinet. MR. WORTHINGTON C. FORD.

Hasbach's History of the English Agricultural Labourer. F. E. WOLFE.

Vernon's Italy, 1494-1790. R. G. ELY.

Parmelee's Anthropology and Sociology in Relation to Criminal Procedure. J. P. WRIGHT.

May 21, 1909.—Some Features of the Government of European Cities. Professor WILLIAM B. MUNRO.

Deming's Government of the American City. W. F. DODD.

Beveridge's Unemployment: a Problem of Industry. F. T. STOCKTON.

DeWitt's The Assassination of Abraham Lincoln. C. G. KELLY.

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Report of the Maryland Geological Survey.

Report of the Johns Hopkins University. Presented by the President to the Board of Trustees.

Register of the Johns Hopkins University. Giving the list of officers and students, describing the courses, setting forth the regulations, etc.

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The Book of Nahum: A New Metrical Translation. By Paul Haupt. 53 pp. 8vo. 50 cents.

Ancient Sinope. By David M. Robinson. 112 pp. 8vo. $1.

Notes on Stahl's Syntax of the Greek Verb. By Basil L. Gildersleeve. 65 pp. 50 cents.

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1910 No. 7

THE

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COLLEGE COURSES FOR TEACHERS

UNIVERSITY OF ILLINOIS
PRESIDENT'S OFFICE
JUL 27 1910

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July, 1910

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[Whole Number, 227]

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PROGRAMMES OF COURSES
1910-11

COLLEGE COURSES FOR TEACHERS
1910-11

COMMENCEMENT, 1910

UNIVERSITY OF ILLINOIS
PRESIDENT'S OFFICE

BALTIMORE
The Johns Hopkins Press
1910

CALENDAR, 1910-11

1910

Tuesday, October 4—Instruction begins.

Thursday, November 24—Thanksgiving Day. All classes suspended.

Saturday, December 17—Last day for application for the University Scholarships.

Tuesday-Friday, December 20-23—Undergraduate Examinations.

Saturday, December 24—The Christmas Recess begins.

Sunday, December 25—Christmas Day.

1911

Tuesday, January 3—Instruction resumed.

Wednesday, February 22—Commemoration Day. All classes suspended. Public exercises at 11 o'clock.

Saturday, April 1—Last day for application for the Johnston Scholarships and the Bruce Fellowship.

Friday-Wednesday, April 7-12—Undergraduate Examinations.

Thursday, April 13—The Easter Recess begins.

Thursday, April 20—Instruction resumed.

Monday, May 1—Last day for application for the University Fellowships.

Thursday, June 1—Last day for application for the Hopkins Scholarships offered to graduate students from North Carolina and Virginia.

Friday-Thursday, June 2-8—Final Undergraduate Examinations.

Monday-Thursday, June 5-8—Oral Examinations for the degree of Doctor of Philosophy.

Tuesday-Friday, June 6-9—Entrance Examinations of Undergraduates.

Tuesday, June 13—Commencement Day. Public exercises at 4 o'clock.

Tuesday-Friday, September 26-29—Entrance Examinations of Undergraduates.

Tuesday, October 3—Instruction begins.

THE
JOHNS HOPKINS
UNIVERSITY CIRCULAR

New Series, 1910, No. 7 JULY, 1910 Whole Number, 227

GENERAL STATEMENTS AS TO THE COURSES OF INSTRUCTION

The Johns Hopkins University will begin its thirty-fifth year of instruction in October, 1910. The work will be carried on in these divisions:

The Graduate department, in which arrangements are made for the instruction of advanced students (men and women) in the higher branches of literature and science. The degrees of Doctor of Philosophy and Master of Arts are offered.

The Medical department, in which students (men and women), who have already received a liberal education, are received as candidates for the degree of Doctor of Medicine, and in which Doctors of Medicine may attend special courses.

The Undergraduate or Collegiate department, in which young men receive a liberal education leading to the degree of Bachelor of Arts.

An academic building, called McCoy Hall, in commemoration of its donor, contains the library and the class-rooms in languages, the historical and economic sciences, and philosophy. Laboratories are provided for Chemistry, Physics, Geology and Mineralogy, Zoology, Botany, Experimental Psychology, Anatomy, Physiology, and Pathology. Seminaries are organized in the Greek, Latin, Romance, German, English, Sanskrit, and Semitic languages, in Classical Archæology and Art, in Mathematics and Physics, and in History, Political Economy, Political Science, and Philosophy. There are various scientific associations and journal clubs which hold regular meetings.

The University Library contains one hundred and forty-seven thousand volumes, part of which are kept in the central reading-room, while the remainder of the books are distributed according to their subjects in the different laboratories and seminaries. The Library of the Peabody Institute contains one hundred and seventy thousand volumes. These books are selected with reference to the wants of scholars, and are accessible daily from nine in the morning until half-past ten in the evening. The proximity of Baltimore to Washington enables the students to visit the libraries, museums, and scientific foundations of the Capital.

The academic year extends from the first Tuesday in October to the middle of June. Instruction will begin October 4, 1910.

The charge for tuition is one hundred and fifty dollars per annum in the graduate and undergraduate departments, and two hundred dollars in the medical department.

The Register, containing statements as to the regulations and work of the University, and separate announcements of the Medical and Collegiate Courses will be sent on application.

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1910-11

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Assistant in Botany.

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Assistant in Medicine.

Alexius McGlannan, M. D.,
Voluntary Assistant in Surgery.

Howard E. Ashbury, M. D.,
Assistant in Surgery.

Charles R. Austrian, M. D.,
Assistant in Medicine.

Walter A. Baetjer, M. D.,
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Assistant in Physiology.

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Assistant in Surgery.

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Assistant in Medicine.

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Karl M. Wilson, M. D.,
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PROGRAMMES FOR 1910-11

The following courses in literature and science are offered for the academic year which begins October 4, 1910. They are open to properly qualified students according to conditions varying in each department.

MATHEMATICS

The advanced courses are so arranged that a qualified student gets in three years the more important points of view of the whole subject. The courses are elastic in character, subjects being introduced as they are needed. In general, the plan pursued is to foster independent inquiry on the part of the student. Once embarked on investigation, he uses all the apparatus of lectures and library with intelligent purpose. The seminary, which meets weekly, is primarily intended for the presentation of the results of the student's own thinking. Literature either intrinsically important or opportune is presented and discussed in the reading class, which also meets weekly.

ADVANCED COURSES

1. Mathematical Seminary.
   One hour weekly. Professor MORLEY.
2. Reading Class.
   One hour weekly. Professor MORLEY.
3. Higher Geometry.
   Three hours weekly, first half-year. Professor MORLEY.

This is a general course in Geometry, covering in three years such matters as Projective Geometry, the Invariants of algebraic forms, Line Geometry, Conformal Geometry, Geometry on an algebraic curve or surface.

4. Theory of Functions.

Three hours weekly, second half-year. Professor MORLEY.

Algebraic Functions and their integrals; Elliptic, elliptic modular, and general automorphic functions; Theory of the potential.

5*. Dynamics.

Two hours weekly, first half-year (every other year). Professor MORLEY.

Special stress is laid on Rigid Dynamics.

6*. Vector Analysis.

Two hours weekly, first half-year (every other year). Professor MORLEY.

7. Elementary Theory of Functions.

Two hours weekly, through the year. Dr. COHEN.

An introduction to the theories of functions of a real and a complex variable.

8. Differential Equations.

Two hours weekly, through the year. Dr. COHEN.

Including, in three years, Ordinary Differential Equations, their integral curves and singular points; Partial Differential Equations; Lie's theory.

9*. Differential Geometry.

Two hours weekly, through the year. Dr. COHEN.

Including a study of Curves in space; Surfaces and lines upon them; Spherical representation; Applicability of surfaces.

10. Calculus of Variations.

Two hours weekly, one half-year. Dr. COHEN.

11*. Theory of Numbers.

Two hours weekly, one half-year. Dr. COHEN.

12. Theory of Groups.

Two hours weekly. Associate Professor COBLE.

Including Theory of Equations, Finite Geometries, Theory of algebraic forms.

13*. Theory of Correspondence.

Two hours weekly. Associate Professor COBLE.

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*Course thus marked will *not* be given in 1910-11.

Including such matters as Cremona Transformations, general birational transformations.

14. Theory of Probability.

Two hours weekly, one half-year. Associate Professor COBLE.

Including the applications to statistics and the Theory of Errors.

UNDERGRADUATE COURSES

1. Solid Geometry; Algebra (special topics).

Three hours weekly, first half-year. Professor HULBURT.

Plane Analytic Geometry.

Three hours weekly, second half-year. Professor HULBURT.

Conference.

Two hours weekly, through the year.

2. Differential and Integral Calculus.

Three hours weekly, through the year. Professor HULBURT.

Conference.

Two hours weekly, through the year.

3. Applications of Calculus; Differential Equations.

Three hours weekly, through the year. Dr. COHEN.

Conference.

Two hours weekly, through the year.

4. Projective Geometry and Descriptive Geometry.

Three hours weekly, through the year. Associate Professor COBLE.

Conference.

Two hours weekly, through the year.

In connection with the three hours' class-room instruction, the instructor in each course meets his students weekly in a two-hour session, for the purpose of supplementary explanation and application of the principles taught in the class-room. This is the part of each course designated as "Conference." It is not intended thus to increase the amount of work required of the student, but rather to aid him in the understanding and preparation of the work of the class.

PHYSICS AND ASTRONOMY

The Physical Laboratory offers facilities in the form of apparatus, libraries, and machine shops to students who wish to pursue experimental investigations in any field of Physics. If the results of these are to be offered as a dissertation for the degree of Doctor of Philosophy, the work must be done under the general direction of the Director of the Laboratory, or of one of the other professors. For students carrying on experimental researches the laboratory is open daily, except Saturdays, from 9 a. m. until 5 p. m., and on Saturdays from 9 a. m. until 1 p. m.

Regular courses of instruction in both Physics and Astronomy are given in the form of lectures and laboratory exercises. They may be classified as Advanced and Elementary. The former are designed primarily for graduate students; the latter, for undergraduates.

ADVANCED COURSES

Seminary and Journal Meetings

All advanced students meet with the instructors twice each week,—once in the Physical Seminary, and once for the discussion of the current Physical Journals.

During the year 1910-11 the questions to be considered in the Seminary will refer to the history of the development of Theoretical Mechanics.

Lectures

1. General Physics. Professor AMES.

Four hours weekly, through the year.

This is a course of lectures in Mathematical Physics continuing for three years and including the subjects of Theoretical Mechanics, Elasticity, Hydrodynamics, Sound, Thermodynamics, Heat Conduction, Electricity and Magnetism, and Light. During the year 1910-11 the lectures will be on Mechanics, Electricity, and Hydrodynamics.

2. Selected Problems in Advanced Physical Optics. Professor Wood.
   Three hours weekly, through the year. [Omitted in 1910-11.]
3. Applied Electricity. Associate Professor Whitehead.
   Two hours weekly, through the year.
4. Applied Electricity (*Advanced Course*). Associate Professor Whitehead.
   Two hours weekly, through the year.
5. Celestial Mechanics. Dr. J. A. Anderson.
   Two hours weekly, through the year.

6*. General Astronomy. Dr. J. A. Anderson.
Three hours weekly, through the year. (See 6 below).

7. Advanced Physical Optics. Dr. A. H. Pfund.
   Three hours weekly, through the year.
8. Conduction of Electricity in Gases. Dr. W. W. Strong.
   One hour weekly, through the year.
9. Kinetic Theory of Matter. Mr. C. M. Sparrow.
   This course will discuss the kinetic theory of gases and liquids, the motion of electrons in solids, the radiation of a black body, and allied topics.
   Two hours weekly, first half-year.

Laboratory Courses

1. Special Exercises in Physics in preparation for independent research, under the direction of Professors Ames, Bliss, and Whitehead, and Dr. Pfund.

2. Applied Electricity. Associate Professor Whitehead.

3. Use of Astronomical and Astrophysical Instruments. Dr. J. A. Anderson.

For students following these courses the laboratory is open daily, except Saturdays, from 9 a. m. to 5 p. m.; the observatory is open every favorable night.

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*This course may be chosen as an elective by undergraduates.

ELEMENTARY COURSES

1. Elements of Physics.

Three hours weekly, through the year. Professor Ames.

This course of lectures is based upon Ames's "Text-book of General Physics," and is intended to include the field of Physics in an elementary manner. It presupposes a knowledge of the elements of plane trigonometry. Course 4 of laboratory work (see below) is arranged to accompany these lectures.

2 *and* 3. The four following series of lectures are given each year and are combined, together with the corresponding laboratory work (see Physics 5 below), into two courses known as Physics 2 and Physics 3. The mode of combination varies from year to year according to the needs of the students applying.

(*a*) Elementary Theoretical Mechanics.

Three hours weekly, twelve to fifteen weeks. Professor Bliss.

This course is designed to serve as an introduction to Mathematical Physics, and students following it must have a knowledge of the elements of the Calculus.

(*b*) Elementary Electricity and Magnetism.

Three hours weekly, fifteen to twenty weeks. Professor Bliss.

This is an introducction to the mathematical theory of the electrostatic and magnetic fields and electric currents. Course "*a*" or an equivalent preparation is assumed.

(*c*) Elementary Thermodynamics.

Three hours weekly, twelve to fifteen weeks. Professor Bliss.

The object of this course is to familiarize the student with the fundamental ideas of Thermodynamics, such as Temperature, Entropy, and Reversibility. By way of illustration applications are made to very elementary problems in heat engines, solutions, and electrochemistry, so far as time will permit. Course "*a*" or an equivalent preparation is assumed.

(*d*) Physical Optics.

Three hours weekly, fifteen weeks. Dr. Pfund.

This course is a moderately advanced treatment of the subject of optics, special emphasis being laid on interference, diffraction, polarization, and their applications to modern instruments of high efficiency.

4. Laboratory Work for Beginners.

Two afternoons weekly, through the year. Professor Bliss and assistants.

In this elementary work the students are taught methods of exact observation and measurement, and, so far as possible, they study the fundamental phenomena of Physics in a quantitative manner. The exercises given in Ames and Bliss's "Manual of Experiments in Physics" serve as a basis for this work.

5. Laboratory Work, in connection with Physics 2 and 3.

To complete each of these courses the student is required to pursue two of the four following groups, making together two afternoons a week for the year.

(*a*) Mechanics.

Two afternoons weekly, twelve weeks. Professor Bliss.

In this course the students are taught methods of exact measurement in time, length, and mass, and methods for the determination of the various mechanical and elastic constants.

(*b*) Electricity and Magnetism.

Two afternoons weekly, twenty weeks. Professor Bliss.

Special attention is given to instruction in modern methods of measurement of various electrical quantities and in the use of improved apparatus. Those qualified and desiring such instruction may substitute work with dynamos, motors, and transformers for part of the course.

(*c*) Heat.

Two afternoons weekly. one half-year. Professor Bliss.

This includes methods of measuring temperature, including the use of thermocouples, resistance thermometers and pyrometers, together with other exercises illustrating lecture course "*c*" above.

(*d*) Optics.

Two afternoons weekly, one half-year. Dr. Pfund.

The students are given a thorough working knowledge of experiments dealing with fundamental principles, as well as of experiments involving the use of modern types of optical instruments, such as the plane and concave grating, Michelson and Fabry and Perot Interferometers, Polarimeters, etc.

6. General Astronomy.

Three hours weekly, through the year. Dr. Anderson.

The theory of astronomical instruments and observations will be outlined (based on Young's "General Astronomy"), a general treatment of spherical astronomy and the elements of celestial mechanics will be given, together with as much physical astronomy as time will permit. The students will spend one evening per week throughout the year in the observatory, where instruction in the actual use of instruments will be given.

CHEMISTRY

The Chemical Laboratory is equipped with apparatus for nearly all kinds of scientific chemical investigations, and it is the policy of the department to provide every needed facility for promising investigations of a special or unusual character.

The laboratory is open daily, except Saturdays, from 9 a. m. until 5 p. m., and on Saturdays from 9 a. m. until 1 p. m.

ADVANCED COURSES

I. *Journal Meetings*

These meetings are held at 9 a. m. on Mondays, throughout the year, and are under the direction of Professor REMSEN. Toward the end of the year, those who have been engaged in research give an account of the progress of their investigations.

II. *Lectures*

(*a*) ORGANIC CHEMISTRY

The lectures in Organic Chemistry are given by Professor REMSEN, except those upon certain chapters of the subject, which are given by Associate Professor ACREE. The course consists of two lectures weekly and extends over two years.

(*b*) INORGANIC CHEMISTRY

The course on this subject is given by Professor MORSE. It consists of two lectures weekly and extends over three years.

(*c*) PHYSICAL CHEMISTRY

Three lectures weekly are given throughout the year by Professor JONES.

(*d*) SPECIAL TOPICS IN CHEMISTRY

Short courses of lectures upon special topics are given each year by Professor JONES and Associate Professor ACREE.

III. *Laboratory Courses*

(*a*) QUALITATIVE ANALYSIS

This course is under the direction of Professor RENOUF, and is designed to meet the needs of those graduate students whose knowledge of the subject is defective.

(*b*) QUANTITATIVE CHEMISTRY

This work is under the direction of Professor MORSE.

(*c*) PHYSICAL-CHEMICAL METHODS

The routine work in this branch usually occupies from four to six weeks and is under the direction of Professor JONES.

(*d*) ORGANIC PREPARATIONS

This work is done under the direction of Associate Professor ACREE. The required work occupies from eight to twelve weeks.

The student who is a candidate for the degree of Doctor of Philosophy, must give evidence that he has a satisfactory knowledge of elementary chemistry and is familiar with laboratory methods, before he is permitted to undertake the advanced courses. These consist of lectures, and laboratory exercises in (*b*) quantitative chemistry, (*c*) physical-chemical methods, and (*d*) organic preparations. The order in which these are taken is not fixed, but is arranged with reference to the convenience of the student.

Having completed the routine work of the laboratory, the student is assigned by the director of the laboratory to one of the staff who proposes to him a subject for investigation, which may be made the basis of the Doctor's dissertation,* and who thenceforth directs his work in the laboratory. It sometimes happens that the student has sound reasons for preferring some particular line of research, and this course is allowed if the circumstances permit.

For those who do not look forward to the degree, the rules are less rigid. Any person admitted to the University as a special student is permitted to take any of the laboratory or lecture courses for which he is qualified by previous training. The department also provides laboratory facilities for experienced chemists who wish to come to it for the purpose of carrying out researches of their own.

UNDERGRADUATE COURSES

1. Introduction to General Chemistry.

(*a*) *Lectures and recitations, three hours weekly, through the year.* Professor Renouf.

(*b*) *Laboratory work, six hours weekly, through the year.* Professor Renouf, Dr. Gilpin, and assistants.

No previous knowledge of chemistry is required. The class-room work is based on Remsen's Chemistry (Briefer Course) and covers the field of inorganic chemistry, as far as possible. The last twelve class-room exercises give a brief sketch of organic chemistry, particularly for the benefit of those students whose study of chemistry is confined to the first-year course. In the laboratory the student repeats the experiments performed in the class-room, and, in addition, has some practice in simple quantitative analysis and in making inorganic preparations. Each student is required to keep a notebook of his work.

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*The length of time required for the completion of the dissertation work cannot be definitely stated, but, as a rule, from one year to one and one-half years should be allowed for it in the plans of the candidate.

2. Advanced Inorganic Chemistry and Qualitative Analysis.

(*a*) *Lectures and recitations, three hours weekly, through the* year. Dr. Gilpin.

(*b*) *Laboratory work, six hours weekly, through the year.* Professor Renouf, Dr. Gilpin, and assistants.

The class-room work in the second year is intended to give a more thorough knowledge of chemical and physical-chemical laws, of the properties of chemical compounds, and of the principles of qualitative analysis. The laboratory work is in qualitative analysis and inorganic preparations.

3. Chemistry of the Compounds of Carbon.

(*a*) *Lectures and recitations, three hours weekly, through the year.* Dr. Gilpin.

(*b*) *Laboratory work, six hours weekly, through the year.* Professor Renouf, Dr. Gilpin and assistants.

The class-room work of the third year is devoted to the study of Organic Chemistry. The laboratory work is the making of organic preparations, but also includes practice in the analytic detection of organic substances and in analytical methods of value to those intending to study medicine. The text-book used is Remsen's Organic Chemistry.

This course is open only to those who have completed Courses 1 and 2.

4. Laboratory Work only.

Laboratory work, six hours weekly, through the year. Professor Renouf. Dr. Gilpin, and assistants.

The laboratory work comprises advanced qualitative analysis, including technical methods, difficult inorganic preparations, and assaying. Those contemplating graduate work in chemistry will devote half of the year to the study of Volhard and Zimmermann's "Experiments in General Chemistry;" others may substitute quantitative analysis.

Students of the fifth group whose principal subject is chemistry are required to pursue the courses in chemistry during the first, second, and third years. Those who look forward to the study of medicine are advised to follow the courses in the first and second years, and to take the course in the compounds of carbon in their last year of residence.

The fourth-year course is intended for those students only who have satisfactorily absolved the courses of the three preceding years. It will be a help to those who intend to follow graduate work in chemistry, and also to those who desire to make a practical use of their knowledge of chemistry after receiving the bachelor's degree.

GEOLOGY

The Geological Laboratory offers facilities in the form of collections, instruments, and libraries to students wishing to pursue special researches in geology and its allied subjects—paleontology, petrography, mineralogy, etc. Such researches may be carried on independently, or with the co-operation of the members of the geological staff; but, if the student intends to become a candidate for a degree, the work must be conducted under the general direction of the head of the department or of his associates.

The laboratory, collections, and libraries are open to the advanced students daily, from 9 a. m. until 5 p. m.

Regular courses of instruction in geology are given in the form of lectures, laboratory exercises, and field work. The advanced courses are adapted to the requirements of students of maturity, the general courses to students desiring an elementary or cultural training in the subject. The former are designed primarily for graduate students in geology; the latter for undergraduates or for students from other departments wishing a more general knowledge of the subject.

ADVANCED COURSES

Seminary and Journal Meetings

The advanced students meet with the instructors once each week for the discussion of current publications dealing with geology. During the latter half of the year papers are presented giving the results of researches conducted in the laboratory, or summarizing the present state of knowledge regarding geological questions of general interest.

Lectures

1. Historical Geology. Professor CLARK.
Two hours weekly, through the year.
2. Sytematic Paleontology. Professor CLARK.
Two hours weekly, through the year.
3. Economic Geology. Professor CLARK.
Two hours weekly, through the year.
4. Geological Physics. Professor REID.
Two hours weekly, through the year.
5. Exploratory Surveying. Professor REID.
Two hours weekly, through the year.
6. Advanced Mineralogy. Professor MATHEWS.
Three hours weekly, through the year.
7. Petrography. Professor MATHEWS.
Three hours weekly, through the year.
8. Paleobotany. Mr. E. W. BERRY.
Two hours weekly, first half-year.

Laboratory Courses

1. Paleontology. Professor CLARK and Mr. BERRY.
Weekly, through the year.
2. Petrography. Professor MATHEWS.
Weekly, through the year.
3. Advanced Mineralogy. Professor MATHEWS.
Weekly, through the year.
4. Geological Field Methods. Professor MATHEWS.
Weekly, during the fall and spring.

Laboratory studies in advanced courses are carried on daily from 9 a. m. until 5 p. m. under the general direction of the professors in charge. who are accessible at all times. An afternoon is devoted especially to each course, when the subject matter is more fully developed by quizzes, demonstrations, etc.

UNDERGRADUATE COURSES

1. Elements of Geology.

Three lectures or recitations and three hours of laboratory work weekly, through the year. Associate Professor SWARTZ.

This course is open to all students. It is designed to give a general view of the subject of Geology, and may profitably be pursued by those who wish to have some knowledge of the chief events of the earth's history. It includes an account of the origin of the features of the surface of the earth, a discussion of the phenomena of earthquakes, volcanoes, mountain-making, and an outline of the past history of the earth.

Materials illustrative of the lectures are studied in the laboratory. Emphasis is placed upon the observation of geological phenomena in nature, the vicinity of Baltimore and the State of Maryland presenting features of unusual interest for such study. Frequent excursions are made to neighboring points where the principles of the science are studied in the field, while a longer trip is made in the spring to places of special interest for geological study. The longer excursion may be omitted by students who desire to do so, the field trips in the vicinity of Baltimore only being taken. This course is illustrated by maps, lantern views, and the rich collections of the university.

2. Mineralogy and Elementary Petrography.

Three lectures or recitations and six hours of laboratory work weekly, through the year. Associate Professor SWARTZ.

This course includes the study of crystallography, a discussion of the more important minerals, and a brief consideration of the origin and characteristics of the chief types of rocks. Numerous excursions are made to points of interest in the vicinity of Baltimore, which is unusually rich in the variety of its rocks and minerals.

Emphasis is laid upon laboratory work, which includes the study of crystal models, the identification of minerals by means of the blowpipe and by inspection, and the examination of rocks in the laboratory and in the field. A knowledge of chemistry is required for the pursuit of this course.

3. Applied Geology.

Three hours weekly, through the year, with laboratory work. Professor MATHEWS.

This course is devoted to a discussion of the non-metallic minerals and rocks which are worked commercially. The knowledge of geology and mineralogy gained in the preceding courses is applied to the recognition of useful minerals, their mode of occurrence, properties, values, and uses. The main sources of coal, oil, clay, building-stones, abrasives, gems, etc., the way they are won, and their economic importance, are treated with more or less detail. The aim of the course is to supply such information regarding mineral resources as an educated man should possess. The treatment of the technical questions of metallurgy or mining must be sought in technical schools.

State Scientific Bureaus connected with the Department.—Two scientific bureaus, established by the legislature and maintained at the expense of the State, are carried on in connection with the geological department. They are the Maryland Geological and Economic Survey and the Maryland State Weather Service. Professor Clark is the director of both these organizations, which are concerned with a study of the geology and physical features of the State of Maryland. The work is carried on under his direction mainly by the instructors and students of the department. A State Forestry Bureau, of which Professor Clark is Executive Officer, is also located in one of the buildings of the geological department.

Advantages afforded by Proximity to Washington.—Washington is less than an hour distant from Baltimore. This renders it possible to take frequent advantage of the facilities afforded by that city, where the officers of the various scientific bureaus and societies give the students of the university every opportunity to examine the rich collections and libraries under their control.

Field Work.—The area of the State of Maryland includes, notwithstanding its comparatively small size, a remarkable sequence of geological formations. The ancient rocks of the earth's crust, as well as those still in the process of deposition, are found, while between these wide limits there is hardly a geological epoch which is not represented. As a result most excellent facilities are afforded for a study of the various geological horizons. Excursions to points of interest are made during the autumn and spring months.

ZOOLOGY AND BOTANY

The Biological Laboratory furnishes adequate rooms, with the usual apparatus, for carrying on research in animal and plant morphology, embryology, and experimental zoology. For special investigations unusual apparatus will be obtained.

It is planned that, before receiving the degree of Doctor of Philosophy, each student shall have the opportunity to study marine and terrestrial life in some tropical region. In the spring and summer of 1910 this work will be carried on in Jamaica, West Indies.

A collection of living plants in the botanical garden and conservatory, a physiological laboratory in the latter, and propagating grounds nearby are available for experimental work. A collection of carefully "fixed" and preserved alcoholic material of several hundred species of plants is available for histological and developmental study. The herbaria of the laboratory include the Schimper collection of European seed plants, the Field Club collection of local plants, the Fitzgerald collection of mosses, and smaller collections of fungi, marine algae, and Jamaican plants.

The library in the laboratory is supplemented by the main library of the university and other libraries in the city, including the excellent botanical library of John Donnell Smith, whose courtesy has always made his library and herbarium available for advanced students.

Prompt publication of abstracts of results is provided for in the University Circular. From time to time the results of extensive investigations in zoology are published by the University Press in a series of illustrated quarto monographs. The Adam T. Bruce Fellowship is awarded to men capable of carrying on research in biology. One of the graduate students in zoology may be appointed each year to occupy the University table at the marine laboratory of the U. S. Fisheries Bureau, at Woods Holl, Mass.

The laboratories are open from 9 a. m. to 5 p. m., and for necessary research in the evenings, but only by special permission.

ADVANCED COURSES

I. *Zoology*

The student will receive such assistance and training as his individual needs seem to require. Work done in the laboratory is supplemented by work in the field and at the seashore. The research work of individual students will be directly supervised by those members of the staff whose own field of investigation is most nearly approached by the problem dealt with.

Journal Club.—All the graduate students take part with the instructors in a weekly discussion of the current literature.

Seminary.—Professors Jennings and Andrews will meet the advanced students for discussion of some of the fundamental problems of zoology, weekly from the beginning of the session until the Easter vacation.

Advanced Zoology.—Professor Jennings. *Three hours a week (lectures, laboratory work, and demonstrations), from the beginning of the session till February* 1.

During the year 1910-1911 this course will be devoted to the Behavior of Animals. It will deal mainly with behavior in lower animals, and will be carried on in co-operation with the course to be given during the second half-year by Professor Watson in the department of Psychology, dealing mainly with higher animals. Students should arrange to take both courses.

II. *Botany*

1. Journal Club and Seminary.

a. The Journal Club meets weekly through the year, in conjunction with the Zoological Journal Club.

b. The Botanical Seminary meets twice weekly, from December 1 to May 1. Professor JOHNSON.

The seminary work of the year 1909-10 was based on Warming's "Oecology of Plants."

2. Lectures and Laboratory Work.

I. The Reproduction and Phylogeny of Plants. Professor JOHNSON.

a. *Three lectures weekly through the year.*

b. *Laboratory work associated with the lectures, twice weekly through the year.*

c. *Definite problems in field work assigned for study in the autumn and spring.*

II. The Histology and Ecological Anatomy of Plants. Professor JOHNSON.

a. *Two lectures or conferences weekly from January* 1 *to April* 1.

b. *Laboratory work twice weekly from January* 1 *to April* 1.

III. The History of Botany. Professor JOHNSON.

Two lectures weekly from October 1 *to December* 20.

The following themes will be discussed in alternate years: The Theory of Sex in Plants, The Cell Theory.

IV. Plant Physiology. Professor LIVINGSTON.

Lectures and laboratory work on the chief plant processes. Green's Plant Physiology will be read. A good general knowledge of physics and chemistry is highly desirable.

a. *Three lectures or conferences weekly till February* 1.

b. *Six hours of laboratory work weekly till February* 1.

v. Physiology of the Cell. Professor LIVINGSTON.

An advanced course on protoplasmic processes, such as protoplasmic movement, the chemistry of nutrition and respiration, enzymes, etc.

a. *Two lectures weekly from February* 1 *to June* 1.

b. *Six hours of laboratory work weekly from February* 1 *to June* 1, *with reading of original articles.*

The laboratory work will aim to give the student illustrative material bearing on the subject as well as to bring him into contact with problems and methods of research, and will require the reading of selected original literature, much of it in French or German. Open to students who have had Course I or its equivalent, or a similar course in animal physiology.

vi. Problems in Plant Physiology. Professor LIVINGSTON.

a. *Two lectures weekly throughout the year.*

b. *Six hours of laboratory work and a one-hour conference weekly throughout the year.*

This course plans to give perspective and to prepare the student for profitable research in either pure or applied physiology. Each student will carry on experimentation upon and will work up the literature of restricted phases of plant activity, reporting on both literature and experiments. A considerable knowledge of the principles and methods of physics and chemistry is prerequisite.

UNDERGRADUATE COURSES

The collegiate courses in zoology and botany are known as Biology 1, Biology 2, Biology 3, and the Natural History Course.

1. General Biology and Embryology.

Six hours laboratory work and three lectures or other exercises weekly, through the year. Professor ANDREWS and assistants.

This introductory course is open to all students and may be taken without previous training in chemistry or physics. It may be taken profitably by students interested in political economy, history, psychology, or ethics; it will be found useful to those looking forward to the ministry; and it is required of all who are to enter the medical school.

(*a*) General Biology. [*Till March* 15.]

In the laboratory each student studies with the microscope, or dissects, selected animals and plants, from the more simple such as amoeba and yeast, to the more complex such as the fern and frog. In the lectures some of the fundamental facts of Biology are emphasized.

(*b*) Embryology. [*After March* 15.]

Each student studies the cleavage of the living frog's egg and the formation and transformation of the tadpole. Subsequently he studies the hen's egg and the formation of organs in the embryo chick, learning to make his own serial sections, etc.

2. Comparative Anatomy and Bacteriology.

Six hours of laboratory work and three lectures or other exercises weekly, through the year. Dr. Cowles.

This course continues the training of Biology 1 in limited fields, and is recommended to those who expect to study medicine, or to specialize in any department of Biology.

(*a*) Comparative Anatomy of Vertebrates. [*Till March* 15.]

The student dissects the skate, shark, codfish, necturus, turtle, alligator, pigeon, and dog. The lectures emphasize the principles of animal morphology.

(*b*) Bacteriology. [*After March* 15.]

The student learns the methods of handling, cultivating, and studying non-pathogenic bacteria. The practical work gives valuable training in careful laboratory methods. The lectures treat of bacteria from a biological point of view, as very important agents in natural processes.

3. Zoology and Botany.

Six hours of laboratory work and three lectures or other exercises weekly, through the year.

(*a*) Zoology. [*First half-year.*]

Professor Andrews and Dr. Cowles.

A comparative study of the chief groups of non-vertebrate animals. This may be made a whole course when botany is not needed.

(*b*) Botany. [*Second half-year.*]

Professors Johnson and Livingston.

The Structure of Root, Stem, Leaf, Flower, and Fruit. [*January to May.*]

An Introduction to Plant Physiology, with selected laboratory experiments. [*After May* 1.]

This is a course for beginners, giving a general survey of the nature and activities of plants, the out-door work serving to give students some familiarity with native plants in the field. This may be made a full course by those desiring it for general culture, or as a preparation for graduate work in botany or for work in forestry.

Elementary Zoology and Botany (Natural History.)

Nine hours weekly, second half-year. Professors ANDREWS and GRAVE.

This course is intended for those having no training in these subjects and is chiefly a laboratory course. It is required of students in groups I, II, III.

It may be made a whole course provided a sufficient number apply.

PHYSIOLOGY

Facilities are offered in the Physiological Laboratory for special students, graduates in medicine and others, who are interested in special lines of investigation, and also for those who wish to follow courses leading to the degree of Doctor of Philosophy in Physiology or allied subjects.

Regular courses of instruction are given as follows:

1. Advanced lectures. Professor HOWELL.

   Irregular intervals. through the year.

2. Journal Club. Professor HOWELL.

   Weekly, through the year.

3. Seminary. Professor HOWELL.

   Weekly, through the year.

4. Physiology of the Animal Body. Professor HOWELL, Dr. HOOKER, and Dr. SNYDER.

   Lectures, three hours weekly, through the year; laboratory, six hours weekly, first half-year.

   [The laboratory course may be repeated in the second half-year.]

5. Advanced Laboratory Work. Professor HOWELL.

   This work is done individually.

GREEK

GREEK SEMINARY

Professor **Gildersleeve** will conduct the Greek Seminary, the plan of which is based on the continuous study of some leading author or some special department of literature.

The Seminary consists of the director, fellows, and scholars, and such advanced students as shall satisfy the director of their fitness for an active participation in the work by an essay, a critical exercise, or some similar test of attainments and capacity. All graduate students, however, may have the privilege of attending the course.

During the next academic year the study of *Aristophanes and the Old Attic Comedy* will constitute the chief occupation of the members. There will be two meetings a week during the entire session, chiefly for the criticism and interpretation of the author, but auxiliary studies in the literary and political history of the period will also find place in the plan of the Seminary.

ADVANCED AND GRADUATE COURSES

1. Professor Gildersleeve will conduct a course of *Practical Exercises in Greek,* consisting chiefly in translation at dictation from Greek into English and English into Greek, two meetings a week from the beginning of the session to the first of January.

2. He will give a series of *Readings in Aeschylus, Sophocles, and Euripides,* once a week after January 1.

3. He will lecture on select chapters of *Greek Syntax and Greek Style,* once a week after January 1.

Arrangements will be made for the competent guidance of the private reading of advanced students; and a course of lectures on *Greek Metres,* with practical exercises, will be conducted by Associate Professor Miller.

The schedule given above is subject to additions and modifications.

The student should be provided with a complete text of Aristophanes, Bergk's or Meineke's, or Hall and Geldart's (Bibliotheca Oxoniensis), von Velsen's critical edition so far as issued, and Kock's editions of the Knights, Clouds (translated by Humphreys), Birds, and Frogs, and Starkie's Wasps (Macmillan).

It is also desirable that the students should possess some edition of the *Fragmenta Comicorum Graecorum*, if possible Kock's, or, if that should be too expensive (48 marks), Meineke's smaller edition of the fragments, and for the study of the period, Thucydides, Xenophon's Hellenica, and Plutarch's Lives of Pericles and Alcibiades.

UNDERGRADUATE COURSES

1. Xenophon, *Memorabilia* (selections).
   Plato, *Apology*.
   Herodotus (selections).

Three hours weekly, first year. Associate Professor Miller.

Prose Composition.

One hour weekly, first year. Associate Professor Miller.

Private Reading: Plato, *Crito;* Homer, *Odyssey* (two books).

2. Lysias (select orations); Isocrates (selections).
   Euripides (one play).
   Prose Composition.

Three hours weekly, second year. Associate Professor Spieker.

Private Reading: Xenophon, *Hellenica* (book 1); Euripides, *Cyclops*.

3. Plato, *Protagoras*.
   Lyric Poets.
   Sophocles (one play).
   Survey of Greek Literature.
   Prose Composition.

Three hours weekly, third year. Associate Professor Spieker.

Private Reading: Elegiac and Iambic Poets; Aeschylus (one play).

4. Thucydides (book vii).
   Lucian (selections).
   Aristophanes, *Frogs*.

Two hours weekly, fourth year. Associate Professor Spieker.

Greek Life: lectures and conferences.

One hour weekly, fourth year. Dr. Robinson.

Private Reading: Demosthenes (select orations); Aristophanes, *Clouds*.

5. Aeschylus, Sophocles, Euripides (one play each).

Three hours weekly, through the year. Associate Professor Spieker.

Associate Professor Spieker offers, for beginners in Greek, a course of three or four hours weekly throughout the year. This course is intended primarily for the benefit of such graduate students of language as may feel the need of a knowledge of Greek in the prosecution of their work; but undergraduate students who have the ministry in view, and who have not had any previous training in Greek, may also be admitted. The class will be advanced as rapidly as is consistent with thoroughness of work.

LATIN

The most important organ of training is the Latin Seminary which meets twice a week throughout the year, under the direction of Professor Smith. It consists of the director, fellows, scholars, and such advanced students as shall give satisfactory proof of their ability and training. Any graduate student is at liberty to attend the Seminary exercises, but each regular member is required to take his turn in the work. Each year some author or group of authors in a given department of literature is made the centre of study. The subjects treated during the last three years are as follows:

1907-1908. The Roman Satire, especially Horace and Juvenal.
1908-1909. The Roman Historians, especially Livy and Tacitus.
1909-1910. The Roman Epic, especially Vergil.

In addition to the regular work of the Seminary, courses of lectures are given every year by the director, and from time to time by other qualified persons.

During the academic year 1910-1911 the attention of the Seminary will be given to the Roman Drama, and the centre of this work will be Plautus and Terence.

Students are requested to provide themselves in advance with complete texts of Plautus (Lindsay, 2 volumes, Oxford Text), Terence (Tyrrell, Oxford Text), *Senecae Tragoediae* (Peiper-Richter, Teubner, 1902), and *Scaenicae Romanorum Poesis Fragmenta* (Ribbeck, 2 volumes, 3d ed., Teubner, 1897-8).

ADVANCED AND GRADUATE COURSES

1.* Professor Smith will lecture once a week, through the year, on the Roman Comedy.

2. During the first half-year he will lecture once a week on the Roman Tragedy from Livius Andronicus to Seneca.

3. During the second half-year he will lecture once a week on Metre and on other topics connected with the formal and stylistic development of the Roman Drama.

4.* Professor Wilson will lecture once a week through the year on Latin Epigraphy. The course will be accompanied by a series of practical exercises in the interpretation of inscriptions from original stones and from published texts.

5. The advanced students will meet once a week through the year for the rapid reading of Plautus, Terence, and Seneca.

UNDERGRADUATE COURSES

1. Livy (selections); Terence (one play); Catullus (selections).

Three hours weekly, through the year. Professor Mustard.

Private reading: Cicero, *Cato Maior;* Plautus (one play).

Prose Composition.

Weekly, through the year. Professor Mustard.

2. Tacitus, *Annals* (selections); Horace, *Odes* and *Epodes.*

Three hours weekly, through the year. Professor Mustard.

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*These courses will be given at an afternoon hour for the benefit of those who cannot attend in the morning.

Private reading: Tacitus, *Germania;* Horace, *Satires* and *Epistles* (selections).

Prose Composition: exercises from time to time.

3. Lucretius (selections); Vergil, *Georgics.*

Two hours weekly. through the year. Professor MUSTARD.

Private reading: Cicero, *First Tusculan;* Quintilian (book x).

Roman Literature (with reading of selected passages).

Weekly, through the year. Professor SMITH.

4. Juvenal (selections); Petronius (selections); Apuleius (selections).

Two hours weekly, through the year. Professor WILSON.

Private reading: Martial (selections); Pliny, *Letters* (selections); Roman Elegy (selections).

Roman Life: lectures and conferences.

Weekly, through the year. Professor WILSON.

5. Advanced Latin Composition.

Weekly, through the year. Professor MUSTARD.

NOTE.—Courses 2, 3, and 4 may be taken only by those who have pursued the courses preceding them.

Roman Literature (Course 3) and Roman Life (Course 4), each one hour weekly, are open to all students, and taken together are counted as half a course.

CLASSICAL ARCHAEOLOGY AND ART

The work in Classical Archæology and Art is carried on by means of a Seminary, various courses of lectures, conferences with individual students and practical exercises in the museums. The archæological material in the possession of the university includes good collections of Greek and Roman inscriptions, marbles, bronzes, vases and other terracottas, coins, gems, etc., which not only serve the purpose of illustration, but also form the basis of original investigation. These are supplemented by squeezes, photographs, and lantern slides, as well as by the casts belonging to the university and to the Peabody

Institute. The new Walters Gallery, which is not far from the university, contains a very valuable collection of Greek and Roman antiquities.

SEMINARY AND ADVANCED COURSES

The subjects treated in the Seminary, or presented in lectures, vary from year to year, so that in three or four years of continuous residence students are brought into contact with the principal fields of archæological research. These subjects include Greek and Roman architecture, epigraphy, topography, sculpture, coins, gems, bronzes, and terracottas, private life, Mycenæan civilization, and Greek vase painting. The following courses are offered for the year 1910-11:

1. Archæological Seminary. Selected topics in the Latin inscriptions. Professor WILSON.

Problems in Pausanias. Associate Professor ROBINSON.

Two hours weekly, through the year.

NOTE.—The University collection contains nearly two hundred original inscriptions, extending in date from 250 B. C. to 500 A. D. These, together with casts, squeezes and other reproductions, furnish material for original investigation in this field.

2. The Topography and Monuments of Ancient Rome, with especial reference to the development of the city from the earliest period.

Weekly, through the year. Professor WILSON.

3.* An introduction to Latin Epigraphy, with practical exercises in the interpretation of inscriptions from original stones and published texts.

Weekly, through the year. Professor WILSON.

4. The Theatre of the Greeks and Romans. This course of eight or ten lectures will be devoted to a discussion of the methods of dramatic presentation in antiquity and of the architectural development of the ancient theatre.

Weekly, during February and March. Professor WILSON and Associate Professor ROBINSON.

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*This course will be given at a late hour in the afternoon for the benefit of those who are unable to attend in the morning.

5. Greek Inscriptions. Lectures with readings from Michel's Recueil, from squeezes, and from original stones.

Weekly, through the year. Associate Professor Robinson.

6. Greek Vase Painting. A brief account of the various early wares will be given, but most of the time will be devoted to the study of the Attic black-figured and red-figured vases as sources of information on mythology and private life.

Weekly, through the year. Associate Professor Robinson.

UNDERGRADUATE COURSES

1. Outlines of Classical Archæology; lectures and conferences.

Three hours weekly. through the year. Professor Wilson and Associate Professor Robinson.

This course is intended to furnish a rapid survey of the principal fields of Greek, Etruscan, and Roman archæology and art. Knowledge of Latin and Greek is not required.

2. The Private Life of the Romans.

Weekly, through the year. Professor Wilson.

3. The Private Life of the Greeks.

Weekly, through the year. Associate Professor Robinson.

Courses 2 and 3 are parts of Latin 4 and Greek 4, respectively, but may be pursued by any student of the University. Taken together they count as half a course, and with the course in Roman Literature (Latin 3) as a full course.

SANSKRIT AND COMPARATIVE PHILOLOGY

Courses of instruction, directed by Professor Bloomfield, with the assistance of an Instructor or Fellow in Sanskrit, are provided in the Indo-Iranian languages (Vedic and Classical Sanskrit, Pāli and Prākrit, Avestan and Old Persian), in Comparative Grammar of the Indo-European languages, in historical Ethnology of the Indo-European peoples, and in general Linguistic Science. During recent sessions courses in the Lithuanian language and literature were given; these also will continue to form a regular feature of the work of the university.

These courses aim to meet the wants of those who wish to devote themselves to the study of these branches exclusively and for their own sake, *i. e.*, those who wish to become specialists in Sanskrit Philology or Comparative Philology; and also the needs of students of languages in general, who wish to obtain a broader linguistic basis for special studies in other departments of philology.

The advanced work aims specially to meet the wants of those who wish to make Indian Philology or Comparative Philology their special study. This work centres in the Sanskrit Seminary and not infrequently involves the use of Sanskrit manuscripts.

A prolonged course in Sanskrit, involving two lectures a week during two years and attendance in the Sanskrit Seminary for a half-year (one hour a week), is planned, so as to furnish a good knowledge of Classical Sanskrit, and to include an introduction into the dialect of the Vedas. This amount of work represents material sufficient for the first subsidiary subject for the degree of Doctor of Philosophy. A course in the same study for one and a half years, involving two hours a week, is the amount required for a second subsidiary subject leading to the same degree.

A synopsis of the courses offered during past years may be presented under the following heads:

I. Courses in the general principles of comparative philology or linguistic science, and on special chapters thereof; lectures on ethnology and the history of religions.

II. Courses in the general comparative grammar of the Indo-European languages; comparative grammar of Sanskrit and Avestan; comparative study of Indo-European accentuation; comparative study of Greek, Latin, Sanskrit, and Teutonic, including vocalism, consonantism, noun-formation, and inflections.

III. The Vedic, Sanskrit, and Prākrit dialects; Rig-Veda; Atharva-Veda; literature of the Brāhmanas and Upanishads. The law books of Manu and Yājñavalkya; the Drama Çakuntalā and introduction into Prākrit; Hitopadeça, Kathāsaritsāgara, and Nala. Sanskrit grammar and prose composition.

IV. The Pāli language and Buddhist literature.

V. The Avestan language and the sacred books of the Avesta.

VI. The Lithuanian language and literature.

The following courses, in charge of Professor Bloomfield, will be given during the session of 1910-1911:

A. *Linguistic Science and Comparative Grammar of the Indo-European Languages.*

1. The elements of Linguistic Science, with an account of the Ethnology and Religions of the Indo-European peoples. *Weekly, through the year.*

2. Comparative grammar of the more familiar Indo-European languages (Greek, Latin, German, and Sanskrit): The history of the vowels and their interrelations (*ablaut*). *Weekly, through the year.*

B. *Indo-Aryan Philology.*

3. Vedic Seminary: The literature of the Rig-Veda. *Weekly, through the year.*

4. The Elements of Vedic philology: Vedic grammar, metres, and interpretation of selected hymns of the Rig-Veda. *Weekly, second half-year.*

5. The Pāli language and selections from Buddhist literature. *Weekly, through the year.*

6. Beginners' course in Sanskrit: grammar (Whitney's Sanskrit Grammar) and interpretation of an easy

text (Lanman's Reader). *Twice weekly, through the year.*

7. Selections from the Hitopadeça and the Law-Book of Manu (second year's course in Classical Sanskrit). *Twice weekly, first half-year.*

C. *Other Indo-European Languages.*

8. Introduction to the Lithuanian Language and Literature. *Weekly, through the year.*

Note.—No knowledge of Sanskrit is presupposed for courses 1, 2, 6 and 8. Course 1 sketches briefly the history of the Science of Language; presents a systematic account of the ethnology and religions of the indo-European peoples; deals with the principles that govern the life and growth of language, and finally treats of the origin of language. Course 2 is intended as an elementary introduction into the methods and results of the Comparative Grammar of the more important Indo-European languages.

MODERN RUSSIAN

Dr. Franklin Edgerton will give the following course during the year 1910-11:

Elements of the Russian Language: A brief survey of the grammar, followed by selected readings from the works of Tolstoi, Tschechov, Turgeniev, Lermontov, Dostojevskij, Gogol, and others.

Twice weekly through the year.

This course will be designed for the needs of students who desire a practical reading knowledge of modern Russian. Comparative grammar and etymological science will be used incidentally to assist students, especially those who know Greek, Latin, or Sanskrit, in mastering the difficulties of the Russian vocabulary and grammatical forms. A knowledge of these languages will therefore be helpful; but no foreign language, except German, is required. The text-books used will be Berneker's *Russische Grammatik* and *Russisches Lesebuch mit Glossar* (*Sammlung Göschen*, Nos. 66 and 67; price 20 cents each.) Those desiring an acquaintance with colloquial Russian will find valuable the *Russisch-deutsches Gesprächsbuch* by the same author (S. G. No. 68, price 20 cents).

ORIENTAL SEMINARY

The various courses are adapted to the requirements of four classes of students, namely: (*a*) students of theology wishing to obtain a thorough acquaintance with the sacred tongue and its sister idioms as a means of elucidating Scripture and problems of the comparative history of religion; (*b*) students of linguistics intending to make comparative grammar of the Semitic languages their specialty; (*c*) students of Oriental history and archæology desirous of drawing directly from the original sources; (*d*) persons looking for instruction in the living Oriental languages (as modern Arabic, Turkish, Persian, modern Hebrew, Amharic, Malay, Tagalog, etc.) for practical purposes.

A room has been set apart containing a well-equipped working library for all the branches of Oriental research (including the library of the late Professor A. Dillmann, of Berlin, the Leopold Strouse Semitic Library, a special collection of works on Philippine dialects, etc.), and some advanced students are usually present to help in the preparation for the recitations conducted by the Director of the Seminary, and to furnish any other aid that may be desired. Near the Dillmann Library, on the same floor, are some archæological and antiquarian collections, including the Cohen Collection of Egyptian Antiquities, the Sonneborn Collection of Jewish Ceremonial Objects, collections of Hebrew and other Oriental manuscripts, Babylonian seal-cylinders and clay tablets, etc.

The following courses are offered for the academic year, 1910-11:

Oriental History, Literature, and Archaeology

1. History of the Ancient East (Egypt, Babylonia, Assyria, Persia, Israel, and Judah). Professor JOHNSTON. *Saturday,* 11 *a. m.*

2. Biblical Archæology. Professor JOHNSTON. *Saturday, 12 m.*

3. Lectures on the Talmud. Dr. ROSENAU. *Friday, 3 p. m.*

4. The Literature of the Old Testament (with special reference to date and authorship). Dr. ROSENAU. *Thursday, 5 p. m.*

5. Interpretation of Selected Chapters of the Old Testament (on the basis of the Authorized Version). Professor HAUPT and Dr. BLAKE. *Friday, 5 p. m.*

Biblical Philology

6. Elementary Hebrew. Dr. EMBER. *Three hours weekly.*

7. Hebrew: Second Year's Course. Dr. BLAKE. *Two hours weekly.*

8. Hebrew Phonology. Dr. BLAKE. *Thursday, 3 p. m.*

9. Unpointed Hebrew Texts. Dr. ROSENAU. *Monday, 11 a. m.*

10. Prose Composition (Hebrew, Arabic, Assyrian, and Sumerian). Professor HAUPT. *Monday, 4 p. m.*

11. Comparative Semitic Grammar. Professor HAUPT. *Monday, 3 p. m.*

12. Old Testament Seminary (Critical Interpretation of the Books of Joel, Habakkuk, and Zephaniah). Professor HAUPT. *Tuesday, 4 to 6 p. m.*

13. Cursory Reading of the Hebrew Bible. Dr. EMBER. *Monday, 5 p. m.*

14. Post-Biblical Hebrew. (Selections from the Mishnah and the Talmud; Rabbinical Commentaries on the Bible). Dr. ROSENAU. *Monday, 10 a. m., 12 m., and 2 p. m.*

15. Medieval Hebrew Poetry. Dr. EMBER. *Friday, 10 a. m.*

16. Jewish Philosophers of the Middle Ages. Dr. Rosenau. *Monday, 9 a. m.*

17. Modern Hebrew. Dr. Ember. *Tuesday,* 11 *a. m.*

18. Hebrew Conversation. Dr. Ember. *Friday,* 9 *a. m., Tuesday,* 10 *a. m.*

19. Biblical Aramaic Grammar and Interpretation of the Aramaic Portions of the Book of Daniel. Dr. Blake. *Friday,* 4 *p. m.*

Syriac

20. Syriac (Roediger's Chrestomathy). Dr. Blake. *Friday,* 3 *p. m.*

Arabic

21. Elementary Arabic (with special reference to students of Romance Languages). Dr. Ember. *Friday,* 12 *m.*

22. Arabic for Beginners (with special reference to students of Hebrew). Dr. Ember. *Monday and Wednesday,* 9 *a. m.*

23. Extracts from the Arabian Nights. Professor Johnston. *Thursday,* 10 *a. m.*

24. Selections from Maimonides. Dr. Ember. *Friday,* 9 *a. m.*

25. Arabic Prose Composition. Professor Haupt. [See No. 10.]

Ethiopic

26. Ethiopic (Dillmann's Chrestomathy). Dr. Blake. *Wednesday,* 4 *p. m.*

Assyriology

27. Assyrian for Beginners. Dr. Blake. *Wednesday,* 3 *p. m.*

28. Selected Assyrian Letters. Professor JOHNSTON. *Thursday,* 11 *a. m.*

29. Sumerian (Selected Bilingual Hymns). Professor HAUPT. *Monday,* 5 *p. m.*

30. Assyrian and Sumerian Prose Composition. Professor HAUPT. [See No. 10.]

Egyptology

31. Egyptian for Beginners. Professor JOHNSTON. *Friday,* 11 *a. m.*

32. Selected Hieroglyphic Texts. Professor JOHNSTON. *Friday,* 10 *a. m.*

Malayo-Polynesian Philology

33. Malay. Dr. BLAKE. *Monday,* 4 *p. m.*

34. Elementary Tagalog. Dr. BLAKE. *Monday,* 5 *p. m.*

Journal Meeting

35. Journal Meeting. Professor HAUPT. *Tuesday,* 3 *p. m.*

ENGLISH

GRADUATE COURSES

In the graduate courses the subject of English is studied with reference to the historical and technical aspects of linguistic and literary science. The usual sequence of courses enables a student, in three or four years, to study with precision the important departments of grammar and of literature, and to become trained in the process of original investigation. Instruction is imparted by lectures, by freer conferences, by the methods of the Seminary, and by class-room recitation. A Journal Club is conducted for the purpose of supplementing the regular courses with reports of the current work of scholars.

1. *English Seminary*

Graduate students are admitted to the Seminary as soon as they have satisfied initial requirements for independent research.

In the academic year 1910-11, the Seminary will be engaged in the study and investigation of the following subjects:

(*a*) English Poetry from Wordsworth to Tennyson. *First half-year.*

(*b*) The English Drama before Shakespeare. *Second half-year.*

The Seminary will be conducted by Professor BRIGHT. *Tuesday and Thursday,* 3-5 *p. m.*

2. Lectures on Historical Grammar, Versification, and Literary Criticism. Professor BRIGHT. *Monday,* 11 *a. m.*

3. Interpretation of selected texts. Professor BRIGHT. *Tuesday and Thursday,* 12 *m.*

4. The Journal Club of the English Seminary. Professor BRIGHT. *Alternate Fridays,* 3-5 *p. m.*

5. Additional courses in literature by Professor Browne and others will be announced later.

UNDERGRADUATE COURSES

Introductory courses in (*a*) Rhetoric and English Composition, (*b*) Platform Speaking and Forensics, and (*c*) English Literature, are prescribed for all undergraduate students. For those who may wish to continue their study in any of these departments, elective courses are provided in the various forms of discourse and in the more important periods of English and American literature. Further practice in debating is provided in connection with the elective course in exposition and argument, and in the annual inter-class and inter-collegiate debates.

English Composition

1. Rhetoric and English Composition.

Theory based upon text-books, lectures, and discussions; critical study of prose writers; frequent practice in writing. This course is prescribed during the first year.

Three hours weekly, through the year. Dr. French and Mr. C. A. Myers.

1*a*. English Composition.

This course is prescribed during the second year. Students who have attained a mark of "8" on the work of the first year are excused from this course.

One hour a week, through the year. Mr. C. A. Myers.

2. Description and Narration.

Readings in standard prose. Practice in writing.

One hour a week, through the year. Professor Greene.

3. Exposition and Argument.

During the first term, the theory of exposition with frequent practice in expository writing. During the second and third terms, the theory of argument; practice in writing; platform speaking and debate.

Two hours weekly, through the year. Dr. French.

Public Speaking

1. Reading and Platform Speaking.

In this course attention is paid to correct habits of breathing and to enunciation and expression. The course is prescribed during the second year.

One hour a week, through the year. Dr. French.

2. Public Speaking.

The principles of argumentation; practice in argumentative writing and in debate; parliamentary procedure. This course is prescribed during the third year.

One hour a week, through the year. Dr. French.

Note.—Additional practice in platform speaking and in debate is provided in English Composition 3.

English Literature

1. English Literature: introductory course.

The class will become acquainted with the course of English Literature from the seventh century until about 1600. Much of the poetry of Chaucer, Spenser, and Shakespeare will be read in the class-room and in private reading. This course is prescribed during the second year.

Three hours weekly, through the year. Professor Greene.

2. English Literature, 1600-1744.

First half-year: English Literature from 1600 to 1660; special attention will be given to the English Bible and to the works of Bacon and Milton.

Second half-year: From the Restoration to the death of Pope (1660-1744); the work will centre upon the writings of Dryden, Addison, Steele, Swift, and Pope.

Three hours weekly, through the year. Professor Greene.

3. English Literature, 1798-1892.

First half-year: English Literature from the publication of the *Lyrical Ballads* to the death of Coleridge (1798-1834); the work will centre upon the writings of Wordsworth, Coleridge, Keats, Shelley, Byron, and Scott.

Second half-year: Tennyson and Browning; novelists and essayists since 1832.

Three hours weekly, through the year. Professor Greene.

4. American Literature.

Literary history in outline; critical study of selected authors; written reports on assigned reading.

Two hours weekly, through the year. Dr. French.

5. English Literature. (Third Year of Group II).

First half-year: The Caroline and "classical" periods in English Literature, 1625 to 1770.

Second half-year: The period of the romantic reaction in English Literature, 1770 to recent times.

Three hours weekly, through the year. Professor Browne.

6. English. (Fourth Year of Group II).

First half-year: Anglo-Saxon.

Second half-year: Middle English and Early Scottish Poets.

Three hours weekly, through the year. Professor Bright and Professor Browne.

GERMAN

Under this head are included German Language and Literature and subjects in the wider field of Germanic Philology. Regular instruction, through seminary and lectures, is given in German Literature and in Gothic, Comparative Germanic Grammar, Old High German, and Middle High German; while occasional courses are offered in Old Norse, Old Saxon, and Old Frisian.

ADVANCED COURSES

Seminary

The library of the German Seminary, to which all advanced students have the fullest access, is open Mondays to Fridays from 9 a. m. to 5 p. m., and Saturdays from 9 a. m. to 1 p. m. The Seminary treats, in successive half-years, some theme from the period of German Classicism or Romanticism, and a subject from the literature of Middle High German. During the year 1910-11 the Seminary will meet three times weekly. The subject for the first half-year will be the period of "Storm and Stress" in German Literature (1772-1785). During the second half-year, the German Courtly Lyrics (Minnesong) of the Twelfth and Thirteenth Centuries will be studied. The Seminary will be conducted by Professor Wood.

Students are requested to procure *Deutsche Nationallitteratur*, hrsg. Jos. Kürschner, Bde. 79-81 (*Stürmer und Dränger*), and Bd. 107 (*Goethes Kleine Jugendschriften in Prosa*); *Minnesangs Frühling*, hrsg. von Lachmann und Haupt, 4. Auflage, Leipzig, 1888.

Germanic Society

The Germanic Society, which includes as members all the instructors and advanced students in German, meets fortnightly. Before it are presented not only reports on articles in current journals, but also successive results of studies by the members. The chief object of the Society is to foster and guide the aptitude for more sustained individual investigation than the collective work of the Seminary offers scope for.

Lectures

1. Gothic and the elements of Comparative Germanic Grammar.

Professor Collitz. *Two hours weekly, through the year.*

Students are requested to procure Braune, *Gotische Grammatik*, 7. Auflage, Halle, 1909.

2. Introduction to the study of Germanic Philology.

Professor Collitz. *Weekly, through the year.*

A brief survey of the various Germanic languages from an historical and comparative point of view will be given. This will be followed by a discussion of the aims and the method of Germanic Philology.

3. Old High German (Introductory Course).

Professor Collitz. *Weekly, first half-year.*

Students should procure Braune, *Abriss der Althochdeutschen Grammatik*, 4. Auflage, Halle, 1906, and the same author's *Althochdeutsches Lesebuch*, 6. Auflage, Halle, 1907.

4. Old High German Texts.

Professor Collitz. *Weekly, second half-year.*

Critical reading of specimens selected from Braune, *Althochdeutsches Lesebuch.*

5. Middle High German (Introductory Course).

Professor Collitz. *Twice weekly, first half-year.*

Paul, *Mittelhochdeutsche Grammatik*, 7. Auflage, Halle, 1908; Bachmann, *Mittelhochdeutsches Lesebuch*, 4. Auflage, Zürich, 1909.

6. The Beginnings of Modern German Classicism.

Professor Wood. *Twice weekly, first half-year.*

The period in German Literature from 1750 to Goethe's Italian Journey (1786) will be studied. The authors to receive the chief share of attention will be Wieland, Klopstock, Lessing and Herder.

7. The German Chap-Books of Eulenspiegel and Faust.

Professor Wood. *Twice weekly, first half-year.*

The particular subject treated will be the development of the "Schalksnarr," vagabond and "Wunderdoktor" into typical and national figures, in the legends of Tyll Eulenspiegel, Faust and Münchhausen. The literary results of the evolution will then be examined in the Faust-play, in Simplicissimus, Immermann and de Coster.

Students are requested to procure *Deutsche Nationallitteratur,* hrsg. Jos. Kürschner, Bde. 25, 33, 160 Teile 1 und 2 (*Volksbücher des sechzehnten Jahrhunderts, Grimmelshausen I., Immermanns Schriften I.*), and Charles de Coster, *Tyll Ulenspiegel,* Deutsch von Fried. von Oppeln-Bronikowski, Jena, 1909.

8. The Swabian Poets, their allies and opponents.

Professor Wood. *Twice weekly, second half-year.*

After studying Uhland and Justinus Kerner, that part of Jung Deutschland will be considered, which was particularly opposed to the Swabians (Heine, Börne). Lenau and Platen, as participants in the feud, will also claim a share of attention.

9. The Elegy in German Literature.

Dr. Roulston. *Weekly.*

Special Courses

1*. Scientific German. Dr. Kurrelmeyer.

Two hours weekly, through the year.

2*. Historical German. Dr. Roulston.

Two hours weekly, through the year.

3. German Conversation. Mr. Hofmann.

Weekly, through the year.

UNDERGRADUATE COURSES

German Elements.

Vos, Essentials of German; Gerstäcker, *Germelshausen;* Keller, *Kleider machen Leute;* Wilhelmi, *Einer muss heiraten;* von Wildenbruch, *Das edle Blut;* Prose Composition; Grammar.

Four hours weekly, through the year. Dr. Kurrelmeyer.

This course is intended only for students who have matriculated in Greek. For such students, it absolves the requirements in German for the baccalaureate degree; other students must absolve course 1.

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*Courses 1 and 2 are for graduates who lack the ability to read German at sight.

German 1.

Modern Prose Readings: C. F. Meyer, von Saar, Fulda, Keller, Sudermann.

Three hours weekly, through the year. Dr. Roulston.

In case of necessity, this class will meet in two sections.

Prose Composition.

Weekly, through the year. Professor Wood.

Private Reading.

German 2.

Classical Authors: Schiller, *Maria Stuart, Die Braut von Messina;* Goethe, *Hermann und Dorothea.*

Twice weekly, through the year. Dr. Roulston.

Prose Composition.

Weekly, through the year. Dr. Roulston.

Private Reading.

German 3.

Goethe, *Faust, Tasso, Iphigenie.*

Two hours weekly, through the year. Professor Wood.

History of Literature (Classical Period). Lyrics and Ballads.

Weekly, through the year. Dr. Roulston.

The work in Goethe and in the History of Literature, etc., may be taken separately.

German 4.

Contemporary Literature, in rapid readings.

Three hours weekly, through the year. Dr. Kurrelmeyer.

German 5.

Historical Readings.

Schiller, *Der dreissigjährige Krieg;* Freytag, *Aus dem Jahrhundert der grossen Krieges;* von Sybel, *Die Erhebung Europas.*

Two hours weekly, through the year. Dr. Roulston.

German 6.

Scientific German.

Lassar-Cohn, *Die Chemie im täglichen Leben;* von Helmholtz, *Ueber Goethes naturwissenschaftliche Arbeiten;* Walther, *Allgemeine Meereskunde.*

Two hours weekly, through the year. Dr. Kurrelmeyer.

This course is open to students who have completed Course 1.

German 7.

German Conversation.

Weekly, through the year. Mr. Hofmann.

ROMANCE LANGUAGES

The department of Romance Languages offers facilities for work in manuscript sources and palæography, in literature (old and modern), in language (phonetics, morphology, syntax, dialects), and in Popular Latin. For students who desire the degree of Doctor of Philosophy, three years are usually required. The work is confined almost entirely to the three principal Romance languages (French, Spanish, and Italian), in all of which special attention is paid to the origins.

Instruction is given in lectures and regular class exercises, the former being supplemented by subjects for special investigation assigned to the student. For each of the languages noted above, a seminary meeting is held once a week. In French the seminary for the old literature alternates with that for the modern literature. A meeting of the Romance Club is also held weekly, at which original papers are read and reviews of recent journals presented. The courses marked with a star will be given at an afternoon hour or in the forenoon of Saturday.

ADVANCED COURSES

French

Seminary (Old French Literature): Marie de France; Work on Manuscripts.
Professor ELLIOTT. *Two hours fortnightly.*

Seminary (Modern French Literature): Flaubert.
Associate Professor TERRACHER. *Two hours fortnightly.*

Studies in French Word-History.
Professor ARMSTRONG. *Weekly.*

French Syntax: Adjective and Verb.
Professor ARMSTRONG. *Two hours weekly.*

French Phonology and Morphology.
Professor ARMSTRONG. *Three hours weekly.*

*French Phonetics.
Professor ARMSTRONG. *Weekly.*

*Readings in Old French Literature: Introductory Course (Paris, *Extraits de la Chanson de Roland* and other texts).
Professor **Armstrong**. *Weekly.*

Readings in Old French Literature: Advanced Course (Bartsch-Horning, *Chrestomathie de l'ancien français*).
Associate Professor **Terracher**. *Weekly.*

Readings in Old Provençal Literature (Appel, *Provenzalische Chrestomathie*).
Associate Professor **Terracher**. *Weekly.*

Les Chansons de Geste du Cycle de Guillaume d'Orange.
Associate Professor **Terracher**. *Weekly.*

*La Tragédie Classique au XVII^{e} Siècle.
Associate Professor **Terracher**. *Weekly.*

*Life and Manners during the Classic Period of French Literature.
Associate Professor **Brush**. *Weekly.*

Le Lyrisme Romantique.
Associate Professor **Terracher**. *Weekly.*

Spanish

Spanish Seminary: Gil Vicente.
Professor **Marden**. *Two hours weekly.*

The Spanish Drama of the Sixteenth Century.
Professor **Marden**. *Weekly.*

*Readings in Old Spanish Literature.
Professor **Marden**. *Weekly.*

Spanish Historical Grammar.
Professor **Marden**. *Weekly.*

Italian

Dante and the Divine Comedy.
Professor **Elliott**. *Weekly.*

Italian Seminary: The *Inferno* of Dante.
Associate Professor **Shaw**. *Two hours weekly.*

Italian Phonology and Morphology.
Associate Professor **Shaw**. *Two hours weekly.*

*The Poetry of the "Dolce Stil Nuovo."
Associate Professor **Shaw**. *Weekly.*

General

Romance Club.
Weekly.

Popular Latin.
Professor Elliott. *Weekly.*

Methodology of the Romance Languages.
Dr. Keidel. *Weekly, first half-year.*

Palæography.
Dr. Keidel. *Weekly, second half-year.*

UNDERGRADUATE COURSES

French

French Elements.

a. The Essentials of Grammar. Fraser and Squair, *French Grammar, Part I.*

b. Easy French Texts. Verne, *Les Enfants du Capitaine Grant;* Labiche, *La Grammaire;* About, *La Mère de la Marquise;* Pailleron, *l'Etincelle;* Augier, *Le Gendre de M. Poirier.*

Four hours weekly, through the year. Mr. Austin.

This course is intended only for students who have matriculated in Greek, and have fully met *at entrance* the matriculation requirements; for such students, it absolves the requirements in French for the baccalaureate degree. Other students must take French 1.

French 1 (*Intermediate Course*).

a. Modern French Prose Writers: Dumas, Daudet, Coppée, Maupassant, Mérimée, Labiche and Martin, Augier, Theuriet, Balzac. Classics: Corneille, *Le Cid;* Molière, *Les Précieuses ridicules, l'Avare.*

b. Grammar and composition based on a French text. Exercises in pronunciation and dictation.

c. Private reading: Fortier, *Histoire de France;* Lamartine, *Scènes de la Révolution française;* Lafontaine, *Fables.*

Four hours weekly, through the year. Associate Professor Brush and Mr. Austin.

French 2 (*Advanced Course*).

a. The Nineteenth Century. Readings from Hugo, Lamartine, Gautier, Alfred de Vigny, Alfred de Musset, Balzac, Flaubert, Zola, Taine, France, Loti, Bazin. Canfield's *French Lyrics.*

b. Prose composition; dictation.

c. Lectures on French literature and on French life.

d. Private reading.

Three hours weekly, through the year. Associate Professor Brush.

French 3.

Classics of the Seventeenth and Eighteenth Centuries. Readings from Corneille, Racine, Molière, Voltaire, Rousseau, and Warren's *French Prose of the Seventeenth Century.*

Two hours weekly, through the year. Associate Professor Brush.

French 4.

Epochs of French Literature.

Lectures; private reading.

Two hours weekly, through the year. Associate Professor Brush.

This course will be conducted in French.

French 5.

Advanced Composition.

Weekly, through the year. Professor Armstrong.

Spanish

1. Hills and Ford, *Spanish Grammar;* Prose Composition; Isla, *Gil Blas;* Alarcón, *El Capitán Veneno;* Peréz Galdós, *Doña Perfecta.*

Three hours weekly, through the year. Professor Marden.

This course is adapted to beginners.

2. Alarcón, *La verdad sospechosa;* Calderón, *La vida es sueño;* Téllez, *Don Gil de las calzas verdes;* Cervantes, *Don Quixote.*

Grammar and Prose Composition.

History of Spanish Literature.

Three hours weekly, through the year. Professor Marden.

This course is open to students who have completed Course 1 or its equivalent.

Italian

1. Grandgent, *Italian Grammar;* Marinoni: *Italian Reader;* Fogazzaro, *Pereat Rochus;* De Amicis, *La Vita Militare.*

Three hours weekly, through the year. Dr. Shaw.

2. Grandgent, *Italian Grammar, Italian Composition.* Selections from classic authors. A text-book of Italian Literature.

Three hours weekly, through the year. Dr. Shaw.

History

Facilities for research are offered in the principal fields of history. Special attention is given to methods of investigation and each advanced student comes under the personal direction of the instructors in his chosen field. This supervision is obtained through seminary meetings and frequent private consultation.

In addition to the library of the university, students make use of the admirable collections of source material in the Peabody Library and the Maryland Historical Society, and are in constant touch with the great resources of the Library of Congress and the departments in Washington. The university library has recently received large and important accessions of historical works and documentary material.

GRADUATE COURSES

European History. The courses in European History direct attention to the social, economic, and constitutional development of European peoples. The subjects follow in consecutive order, the topics for each year forming a complete and independent group. The series requires three years for completion and offers opportunities for close study of selected portions of the mediæval and early modern history of the Continent. A weekly seminary is held for the study of problems in European history and institutions.

Courses in Latin palæography and in French palæography are given in their respective departments.

English History. The constitutional and social history of England is treated in connection with the corresponding periods in European history. A part of the seminary work is devoted to problems in this field and direction is given to further special research. A separate course is provided for the historical development of English common and statute law.

American History. The courses in American History begin with the history of British colonization in America and deal with the constitutional and economic growth of the colonies and the constitutional and political history of the United States after 1783. A weekly seminary is held for research in special subjects in American History.

Ancient History. The courses in Ancient History take into consideration the constitutional, social, artistic, and economic development of the peoples of Greece and Italy. Special attention is given to the historical evidence furnished by epigraphy and archæology. The constitutional history of Greece and Rome is supplemented by lectures on the Roman Law. Certain portions of Oriental History are treated in the departments of Semitics and Sanskrit.

Special Lectures. The Albert Shaw Lectures on Diplomatic History are given annually by investigators in selected fields of American and foreign relations. The scope of the lectures is not confined to the United States, but lectures on European diplomatic history will also find their due place.

The James Schouler Lectures on History and Political Science are given annually by lecturers of prominence, upon topics indicated in the title of the lectureship. These lectures are open to the public as well as to the students and members of the University. The course for

1909 was given by Dr. Abbott Lawrence Lowell, President of Harvard University, and that for 1910 by George Walter Prothero, Litt. D., formerly professor of history in the University of Edinburgh, now editor of the *Quarterly Review* and Honorary Fellow of Queen's College, Cambridge. The lecturer for 1911 will be Professor John Bassett Moore, of Columbia University.

Other lectures of interest to the students of this department, either open to the public or designed for class instruction, are given from time to time by distinguished scholars outside the University. These lectures are, in part, provided for from the income of the fund bequeathed by the late Professor Herbert B. Adams.

Historical and Political Science Association. This monthly meeting of the instructors and students of the departments of History, Political Economy, and Political Science affords an opportunity to hear addresses from prominent specialists, to consider important movements and undertakings, and to present critical reviews of recent publications in the fields of history, political economy, and political science.

For the year 1910-11 the courses will be as follows:–

Professor VINCENT.

1. Early Mediæval History of Europe.

The study of the origins of the nations of Western Europe, giving emphasis to their social institutions and economic development.

Two hours weekly, through the year.

2. Theory and practice of Historical Method.

One hour weekly, through the year.

3. Seminary in European and English History.

Two hours, alternate weeks.

Associate Professor BALLAGH.

1. History of the United States, 1830-1860.
   Two hours weekly, first half-year.
2. History of American Slavery.
   Two hours weekly, second half-year.
3. Seminary in American History.
   Two hours, alternate weeks.

Dr. Magoffin.

1. History of Greece to 338 B. C.
One hour weekly, through the year.

2. History of Rome and Italy to 133 B. C.
One hour weekly, through the year.

UNDERGRADUATE COURSES

1. History of Greece and Rome.

The political and constitutional history of Greece and Rome, approached through the translated texts of Herodotus, Thucydides, Suetonius, Tacitus, and others, with the aid of modern authorities.
Three hours weekly, through the year. Dr. Magoffin.

2. European History (General History).

From the decline of the Roman Empire to the nineteenth century, dealing with the Romano-Barbarian kingdoms, the empire of Charles the Great, feudalism, the crusades, empire and papacy, renaissance, the Protestant revolution, the religious wars, eighteenth century states and the doctrine of the balance of power, the French Revolution, the Napoleonic period, and the reorganization of Europe in the nineteenth century.
Three hours weekly, through the year. Professor Vincent.

3. English History.

Chiefly constitutional and political, dealing with the origins and development of parliamentary institutions, the relations of England with continental Europe, and the modern expansion of the British Empire. Open to students who have had, or are taking, History 2 or Political Economy 1.
Three hours weekly, through the year.

4. American History.

Colonial history and institutions, the formation of the Union, the development of constitutional government and law, the growth of foreign policy, the expansion of the nation. Emphasis will be laid on the national period, and the subject will be brought to the close of the nineteenth century. Open to students who have had History 2 and 3 or Political Economy 1.
Three hours weekly, through the year. Associate Professor Ballagh.

The History courses begin in the second year of the college work. Students in Group III will at that time begin with course 1, and in the third year will be expected to take both 2 and 3. Course 4 completes the plan of instruction in History, and students of Group III who have had courses 2 and 3 are advised to take this in the fourth year.

POLITICAL ECONOMY

GRADUATE COURSES

The graduate instruction in Political Economy is designed primarily to meet the needs of advanced students preparing for a professional career in economic science. The courses afford systematic instruction in general economic principles, intimate acquaintance with special fields of economic activity, and, most important of all, knowledge of and ability to employ sound methods of economic research. The work centres in the Economic Seminary, the membership of which is limited to the most advanced students, and the primary design of which is to develop scientific research in economic study and investigation.

Formal graduate instruction is offered in Economic Theory and in Applied Economics, by parallel courses of lectures throughout the year. The particular topics treated vary from year to year. In 1908-09 Professor Hollander lectured two hours weekly on economic thought before Adam Smith, and two hours weekly on the theory and practice of exchange. During the year 1909-10 attention was given, in the course on economic theory, to the economic system of David Ricardo. In the course on applied economics, careful study was made of the history and theory of taxation. Associate Professor Barnett lectured during the first half-year on the development of factory legislation and during the second half-year on the legal position of trade unions. Special courses of lectures were given during the year by Mr. John M. Glenn, Director of the Russell Sage Foundation, on "Problems of Relief;" by Mr. Logan G. McPherson, of New York, on "Railway Transportation;" by Dr. James Bonar, Deputy Master of the Canadian Mint, on "Justice and Distribution."

The courses offered for 1910-11 are as follows:

1. The Economic Seminary.

Two hours weekly, through the year. Professor HOLLANDER and Associate Professor BARNETT.

The work of the year will continue to be a systematic study of the history, structure, and activities of labor organizations in the United States.

2. The Principles of Political Economy.

Two hours weekly, through the year. Professor HOLLANDER.

During the first half-year, attention will be paid to the proper method of economic inquiry; during the second half-year the fundamental theories of the science will be subjected to critical examination. Representative texts will be assigned for reading and study.

3. Municipal Finance.

Two hours weekly, through the year. Professor HOLLANDER.

During the first half-year, the historical development of American local finance will be studied; during the second half-year, attention will be paid to the present fiscal problems of the American city.

4. Industrial Corporations.

One hour weekly, through the year. Associate Professor BARNETT.

During the first half-year attention will be given to the history of the industrial corporation and to its position in modern economic organization; during the second half-year a detailed study will be made of the administration and financing of industrial corporations.

Special courses of lectures will be given by non-resident lecturers upon such practical economic problems as charities and correction, railway transportation, industrial organization.

A reading class is organized yearly by the more advanced students of the department for the co-operative study of economic texts and for the critical discussion of current economic literature.

In co-operation with the departments of history and political science, opportunity is offered in the Historical and Political Science Association for the presentation and discussion of original papers in economic science by instructors and invited speakers, and for the review by students of current publications of importance in these fields.

UNDERGRADUATE COURSES

1. (*a*) Economic History.

The economic development of England from the tenth century to the present time and the most important experiences of the United States are studied.

Three hours weekly, first half-year. Associate Professor BARNETT.

(*b*) Elements of Economics.

Particular attention is given to the theory of distribution and its application to leading economic problems.

Three hours weekly, second half-year. Associate Professor BARNETT.

2. (*a*) Finance.

The theory and practice of finance are considered, with particular reference to problems of taxation as presented in the experience of the United States.

Three hours weekly, first half-year. Professor HOLLANDER.

(*b*) Money and Banking.

The principles of monetary science are taught with reference to practical conditions in modern systems of currency, banking, and credit.

Three hours weekly, second half-year. Professor HOLLANDER.

3. (*a*) Statistical Methods.

After a preliminary study of the value and place of statistics as an instrument of investigation, attention is directed to the chief methods used in statistical inquiry.

Three hours weekly, first half-year. Associate Professor BARNETT.

(*b*) Economic Institutions.

Labor unions, corporations, and trusts are studied primarily as elements in the organization of industry.

Three hours weekly, second half-year. Associate Professor BARNETT.

NOTE.—Undergraduate course 2 is open only to such students as have completed course 1; and, save under exceptional circumstances, course 3 only to students who have completed 1 and 2.

POLITICAL SCIENCE

GRADUATE COURSES

The graduate work in Political Science has for its aim the preparation of advanced students for professional and original work in the fields of Constitutional Law, International Law and Diplomacy, and Political Philosophy. It seeks also to supply the necessary training for those desiring to enter the higher branches of the public service, and to furnish a broad and philosophical equipment to those who expect later to pursue the study and practice of the law.

Seminary

In addition to the Historical and Political Science Association, at which the students of the departments of History, Economics, and Political Science meet jointly for the presentation of papers by the instructors and by invited speakers, a fortnightly Seminary is conducted by Professor Willoughby, at which reports upon special subjects are read by the students and discussed.

Journal Club

A weekly meeting of the advanced students, under the direction of Professor Willoughby, is held for the discussion of current political literature—books and periodicals.

Lectures

The lectures are so arranged as to give three or more years of continuous instruction, covering the following subjects: The Theory of the State (being a general introduction to the study of Constitutional and International Law), Foreign Constitutional Law, United States Constitutional Law, the Legal Aspects of Economic and

Industrial Problems, the History of Political Theories and of Political Literature, and Historical Jurisprudence.

During the year 1910-11 the following courses will be given:

1. United States Constitutional Law. Professor WILLOUGHBY.

Two hours weekly, through the year. [Extending over three years.]

2. Political Theories and Political Literature in England since 1688. Professor WILLOUGHBY.

One hour weekly, first half-year.

3. Political Theories and Political Literature in France since 1750. Professor WILLOUGHBY.

One hour weekly, second half-year.

4. Principles of International Law. Dr. J. B. SCOTT.

One hour weekly, through the year.

5. Historical Development of the English Law. Dr. STEINER.

One hour weekly, through the year.

This course is a continuation of the one given in 1909-10, and will deal with the development of the substantive principles of the Common Law.

Undergraduate instruction in Political Science is given in the departments of History and Economics.

PHILOSOPHY, PSYCHOLOGY, AND EDUCATION

GRADUATE COURSES

The graduate work of the department takes different directions according as the chief interest of the student lies in the field of Philosophy, in Experimental and Comparative Psychology, or in Education. The primary aim of the department is to provide special training in the methods of philosophical inquiry and psychological research, and in their application to the problems of educational theory and practice.

In Philosophy, opportunity is offered for specialization in systematic philosophy, history of philosophy, and ethics. In Psychology, the fields of human and animal psychology are represented in courses for training and for research. In Education, the work recognizes the bearing of the historical and theoretical material upon present practical problems.

The program of the individual student during his first and second years, is adapted, so far as possible, to his special needs and future aims as teacher or investigator. In the third year the student concentrates, in the seminary and laboratory courses, upon the topic of his dissertation.

1. Graduate Conference. A conference composed of all the instructors and university students meets fortnightly. Papers are read, and reports on the progress of work, reviews of books, etc., are presented for general information and criticism. Each member of the department is expected to contribute to the work of the Conference.

2. The Conception of Evolution.

Professor LOVEJOY. *Two hours a week, through the year.*

This course will consist of a historical and analytical inquiry into the meaning and the bearings upon epistemology, ethics, and metaphysics of the general notion of temporal Becoming, and of certain modern theories of cosmic and organic evolution.

3. Systematic Ethical Theory.
Professor Lovejoy. *Two hours a week, through the year.*

4. Continental Philosophy from Descartes to Kant.
Professor Griffin. *One hour a week, through the year.*

5. English Ethics of the last half-century.
Professor Griffin. *One hour a week, through the year.*

6. Modern Pantheism and Pessimism: Schopenhauer's World as Will and Idea.
Professor Buchner. *One hour a week, through the year.*

7. Readings in German Philosophy. Text to be selected.
Professor Buchner. *One hour a week, through the year.*

8. Philosophy of Education (Seminary Course).
Professor Buchner. *Two hours a week, through the year.*

9. Educational Psychology.
Professor Buchner. *One hour a week, through the year.*

10. Introduction to Experimental Psychology.
Dr. Dunlap. *Lectures and laboratory exercises, Monday, Tuesday, and Wednesday, 2 to 4 p. m.*

11. Experimental Psychology (Research Course).
Professor Watson and Dr. Dunlap. *Two hours a week, through the year.*

12. Introduction to Comparative Psychology. Lectures and laboratory exercises.
Professor Watson. *Two hours a week, through the year.*

13. Comparative Psychology (Research Course).
Professor Watson. *Two hours a week, through the year.*

14. Advanced General Psychology.
Professor Watson. *Two hours a week, through the year.*

15. Attention and Feeling from the Experimental Point of View.
Dr. Dunlap. *Two hours a week, second half-year.*

16. Psychological Journal Club.
Two hours a week, through the year.

UNDERGRADUATE COURSES

1. *a.* Deductive and Inductive Logic.

Creighton's Introductory Logic is, at present, used as a textbook, with references to the works of Jevons, Mill, Bain, Keynes, and other writers.

Professor Griffin. *Three hours weekly, until Christmas.*

b. Psychology.

Text-books liable to change from year to year are made the basis of instruction, but the subject is presented largely through informal lectures and discussions, and by means of passages in various authors assigned for reading. A series of lectures and demonstrations on physiological and experimental psychology is included in the course. One essay on an assigned subject is required from each member of the class.

Professor Watson. *Four hours weekly, January to April.*

c. Ethics.

The subject is taught by lectures, recitations from a textbook—Mackenzie's Manual of Ethics being used at present,—and references to the works of the most important writers.

Professor Griffin. *Three hours weekly, after April* 1.

2. Outlines of the History of Philosophy.

Rogers's Student's History of Philosophy, Weber's History of Philosophy, and other works of reference, are used as the basis of lectures, discussions, and recitations.

Professor Griffin. *Two hours weekly, through the year; a third hour, for readings from the works of leading philosophers, may be taken.*

All candidates for the degree of Bachelor of Arts are required to follow course 1 during the last year of residence.

LECTURES ON ILLUMINATING ENGINEERING

The Johns Hopkins University offers for the academic year 1910-1911 a course of thirty-six lectures on the science and art of Illuminating Engineering. This course owes its origin to the following considerations:

The Illuminating Engineering Society recognizing the fact that there is an increasing demand for trained illuminating engineers and that the present facilities available for the specialized instruction required are inadequate, determined, through an act of the Council of the Society, to encourage the establishment of a course of lectures on the subject of illuminating engineering. This course should have three objects: (1) to indicate the proper co-ordination of those arts and sciences which constitute illuminating engineering; (2) to furnish a condensed outline of study suitable for elaboration into an undergraduate course for introduction into the curricula of undergraduate technical schools; and (3) to give practicing engineers an opportunity to obtain a conception of the science of illuminating engineering as a whole.

Inasmuch as such a course is most appropriately given at a University where graduate instruction is emphasized, and as the Johns Hopkins University has regularly offered courses by non-resident lecturers as part of its system of instruction and is now preparing to extend its graduate work into applied science and engineering, an arrangement has been effected by which the lectures will be given at this University under the joint auspices of the University and the Illuminating Engineering Society. The subjects and scope of the lectures have been proposed by the Society and approved by the University. The lecturers have been invited by the University upon the advice of the Society.

The program of lectures together with the list of lecturers is given below.

The University will provide facilities for demonstrations at lectures and will also have installed a working exhibit of apparatus for experimental work in light, illumination, and illuminating engineering. This apparatus will be at the disposal of those who attend and an opportunity will be afforded to undertake laboratory work during the term of the lecture course under the supervision of trained experts of the University and of the Society.

A fee of $25.00 will be charged for admission to the course and to the accompanying laboratory instruction. The complete course of thirty-six lectures will be given between the dates October 26 and November 8, 1910, inclusive.

LECTURES ON ILLUMINATING ENGINEERING

I. The Physical Basis of the Production of Light. *Three lectures.*

JOSEPH S. AMES, Ph. D., Professor of Physics, The Johns Hopkins University.

II. The Physical Characteristics of Luminous Sources. *Two lectures.*

EDWARD P. HYDE, Ph. D., President, Illuminating Engineering Society; Director of Physical Laboratory, National Electric Lamp Association.

III. The Chemistry of Luminous Sources. *One lecture.*

WILLIS R. WHITNEY, Ph. D., Director of Research Laboratory, General Electric Co.; Past President, American Chemical Society.

IV. Electric Illuminants. *Two lectures.*

CHARLES P. STEINMETZ, Ph. D., Consulting Engineer, General Electric Co.; Professor of Electrical Engineering, Union University.

V. Gas and Oil Illuminants. *Two lectures.*

(1) M. C. WHITAKER, B. S., M. S., Professor of Industrial Chemistry, Columbia University.

(2) ALEXANDER C. HUMPHREYS, M. E., Hon. Sc. D., President of Stevens Institute of Technology; Past President, American Gas Institute.

VI. The Generation and Distribution of Electricity with Special Reference to Lighting. *Two lectures.*

John B. Whitehead, Ph. D., Professor of Applied Electricity, The Johns Hopkins University.

VII. The Manufacture and Distribution of Gas, with Special Reference to Lighting. *Two lectures.*

(1) Mr. Edward G. Cowdery, President of the People's Gas Light and Coke Co., Chicago.
(2) Mr. Walter R. Addicks, Vice-President of Consolidated Gas Co., New York.

VIII. Photometric Units and Standards. *One lecture.*

Edward B. Rosa, Ph. D., Physicist, National Bureau of Standards.

IX. The Measurement of Light. *Two lectures.*

Clayton H. Sharp, Ph. D., Test Officer, Electrical Testing Laboratory, New York City; Past President, Illuminating Engineering Society.

X. The Architectural Aspects of Illuminating Engineering. *Two lectures.*

Walter Cook, A. M., Vice-President, American Institute of Architects; Past President, Society of Beaux Arts Architects.

XI. The Decorative Aspects of Illuminating Engineering. *One lecture.*

Mr. Louis C. Tiffany, President of the Tiffany Studios, New York.

XII. The Physiological Aspects of Illuminating Engineering. *Two lectures.*

P. W. Cobb, B. S., M. D., Physiologist of the Physical Laboratory of the National Electric Lamp Association.

XIII. The Psychological Aspects of Illuminating Engineering. *One lecture.*

John B. Watson, Ph. D., Professor of Experimental Psychology, Johns Hopkins University.

XIV. The Principles and Design of Interior Illumination. *Six lectures.*

(1) L. B. Marks, B. S., M. M. E., Consulting Engineer, New York City; Past President, Illuminating Engineering Society.
(2) Mr. Norman Macbeth, Illuminating Engineer, The Welsbach Co.

XV. The Principles and Design of Exterior Illumination. *Three lectures.*

(1) LOUIS BELL, Ph. D., Consulting Engineer, Boston, Mass.; Past President, Illuminating Engineering Society.

(2) E. N. WRIGHTINGTON, A. B., Boston Consolidated Gas Co.

XVI. Shades, Reflectors, and Diffusing Media. *One lecture.*

VAN RENSSELAER LANSINGH, B. S., General Manager of Holophane Co.

XVII. Lighting Fixtures. *One lecture.*

MR. EDWARD F. CALDWELL, Senior Member of Firm and Designer, Edward F. Caldwell and Co., New York.

XVIII. The Commercial Aspects of Electric Lighting. *One lecture.*

JOHN W. LIEB, JR., M. E., Third Vice-President of New York Edison Co.; Past President, American Institute of Electrical Engineers.

XIX. The Commercial Aspects of Gas Lighting. *One lecture.*

WALTON CLARKE, M. E., President of The Franklin Institute, Philadelphia; Third Vice-President, United Gas Improvement Co., Philadelphia.

The laboratory demonstrations will be under the direction of:

CHARLES O. BOND, Manager of Photometric Laboratory, United Gas Improvement Co., Philadelphia.

HERBERT E. IVES, Ph. D., Physicist, Physical Laboratory, National Electric Lamp Association.

PRESTON S. MILLAR, Electrical Testing Laboratories, New York; General Secretary, Illuminating Engineering Society.

Cards of admission may be obtained by application to the Johns Hopkins University.

COLLEGE COURSES FOR TEACHERS

OFFERED BY

THE JOHNS HOPKINS UNIVERSITY

AND

GOUCHER COLLEGE

1910-11

COMMITTEE IN CHARGE

Edward F. Buchner, *Chairman,* Professor of Education and Philosophy.

John B. Van Meter, Dean of the Faculty of Goucher College.

Harry L. Wilson, Professor of Roman Archæology and Epigraphy.

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up and returned to the Chairman of the Committee, on or before September 24, 1910.

Professor Buchner may be found in McCoy Hall, first floor, daily from September 24 to October 7 (3-5 p. m., Monday to Friday, 10 a. m., Saturday). Regular consultation hours, 11 a. m., daily, and 5 p. m., Tuesdays.

INSTRUCTORS IN THE COLLEGE COURSES FOR TEACHERS

Ira Remsen, LL. D., *President*

Henry Wood, Ph. D., Professor of German.	*German*
Edward Renouf, Ph. D., Collegiate Professor of Chemistry.	*Chemistry*
Herbert Eveleth Greene, Ph. D., Collegiate Professor of English.	*English*
Wilfred P. Mustard, Ph. D., Collegiate Professor of Latin.	*Latin*
Edward F. Buchner, Ph. D., Professor of Education and Philosophy.	*Education*
Murray P. Brush, Ph. D., Associate Professor of French.	*French*
J. Elliott Gilpin, Ph. D., Associate in Chemistry.	*Chemistry*
John C. French, Ph. D., Associate in English.	*English*
Robert Bruce Roulston, Ph. D., Instructor in German.	*German*
William H. Maltbie, Ph. D., Professor of Mathematics in Goucher College.	*Mathematics*
William E. Kellicott, Ph. D., Professor of Biology in Goucher College.	*Biology*
Clara Latimer Bacon, A. M., Associate Professor of Mathematics in Goucher College.	*Mathematics*
Annie Heloise Abel, Ph. D., Associate Professor of History in Goucher College.	*History*

COLLEGE COURSES FOR TEACHERS

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work has been done without any reference to credit toward an academic degree.

Goucher College has also offered without reference to academic credit special courses of instruction and lectures open to teachers of Baltimore in an effort to serve a larger constituency than its regular enrolled students.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with Goucher College, offered during 1909-1910 courses of instruction to teachers whose vocation prevents their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1910-1911. It is the primary aim of these courses to provide the teachers in our public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in college classes. In order to give further encouragement to teachers in service to carry on extended systematic study, this plan of college courses for teachers also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degree of Bachelor of Arts.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. These courses will be open to men and women alike, and will be carried on independently of the regular collegiate instruction of the institutions. In the case of women who may desire to become candidates for the baccalaureate degree, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the Collegiate Department of the Johns Hopkins University in the case of those men who desire to proceed to the baccalaureate degree. Total credits of sixty units or hours are required for graduation in each institution.

The instruction will be conducted as far as possible at the Johns Hopkins University. In some instances, however, classes and laboratory exercises may be held at Goucher College.

ADMISSION

The requirements for admission to the College Courses for Teachers conform in general to the requirements for matriculation fixed by the Johns Hopkins University in its Collegiate Department, and to the entrance requirements prescribed by Goucher College. The preparatory training desirable for the successful pursuit of these courses is that represented by the completion of a standard four-year high school course.

Applicants may be admitted to these courses by either of the following means:

1. Passing an examination.
2. Presenting certificates:
    - (*a*) Of the College Entrance Examination Board.
    - (*b*) Of public and private high schools and normal schools approved by the Committee in charge.
    - (*c*) Of work completed in other colleges.

In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course.

Applications for admission to these courses must be presented to the Committee in charge of College Courses for Teachers.

ADMISSION WITH REFERENCE TO A DEGREE

Those applicants who wish to become candidates for the degree of Bachelor of Arts in the Johns Hopkins University are referred to the circular descriptive of "The Collegiate Instruction of the Johns Hopkins University," 1910, pp. 50-57, for a detailed statement of the requirements for matriculation. This circular may be had by addressing the Registrar.

Those applicants who desire to become candidates for the same degree in Goucher College, are referred to the "Program of the Woman's College of Baltimore," 1910, pp. 18-32, for a detailed statement of the corresponding requirements in this institution. This circular may be had by addressing the Registrar.

As a final requirement before the degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree of Bachelor of Arts is conferred by the Johns Hopkins University upon men only.

ADMISSION TO ADVANCED STANDING

The courses offered for 1910-1911 represent for the most part the work usually required in the first and second college years. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of these, an effort will be made to arrange for such instruction. In considering applications for advanced standing the Committee will be guided by the regulations in force, in such cases, in the two institutions.

EXPENSES

The charge for instruction will be at practically the same rate per hour as for the undergraduate courses in the Johns Hopkins University and Goucher College, namely:

Ten Dollars per year for each hour per week. Each course will continue throughout the academic year. Where laboratory fees are required they are additional. Three hours of laboratory work will be charged as one hour of recitation or lecture.

Fees are payable in semi-annual instalments, in October and February, at the office of the Treasurer of the Johns Hopkins University, 712 North Howard Street. Before payment of fees can be made, applicants must receive from the Committee in charge a card stating the courses to be taken.

SESSION

The College Courses for Teachers will open on Tuesday, October 11, 1910, and close on Saturday, June 3, 1911. Each course will include instruction for thirty weeks. Class-room and laboratory exercises will be given in the afternoon from Tuesday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual college recesses at Thanksgiving, Christmas, and Easter.

Applications for admisssion are to be filed with the Chairman of the Committee in charge of the College Courses for Teachers, the Johns Hopkins University, on or before September 24, 1910.

SCHEDULE OF HOURS

(Subject to minor changes at the opening of the courses in order to meet the convenience of students.)

	4.10—5.00 P. M.	5.10—6.00 P. M.
Tuesday	Education (Buchner) French (Brush) German (Wood) Latin (Mustard)	Biology (Kellicott) Chemistry (Renouf) English Composition (French) English Literature (Greene) Algebra, Geometry (Maltbie)
Wednesday	History (Abel)	Calculus (Bacon)
Thursday	French (Brush) German (Wood) Latin (Mustard)	Biology (Kellicott) Chemistry (Renouf) English Composition (French) Algebra, Geometry (Maltbie)
Friday	Education (Buchner) History (Abel)	Calculus (Bacon) English Literature (Greene)
	9.00—10.00 A. M.	10.00 A. M.—1.00 P. M.
Saturday	French (Brush) German (Roulston) Latin (Mustard) Algebra, Geometry (Maltbie)	Biology (Kellicott) (Biological Laboratory, Goucher College) Chemistry (Gilpin)

THE COURSES OF INSTRUCTION

Any course for which there are fewer than ten applicants may be withdrawn.

The exact amount of credit towards the degree of Bachelor of Arts which will be allowed for successful completion of each of the courses mentioned below, can be determined definitely only at the end of the year.

Biology

This course treats of the characteristics of living organisms, both plant and animal, their constant relations with one another and with the inorganic world, and the development of form, structure, and function in a series of types of increasing complexity. The course concludes with a brief discussion of the theory of organic evolution. Two hours class-work, three hours laboratory work weekly. A laboratory fee of $5.00 will be charged to cover the cost of material.

Professor KELLICOTT. Tuesday and Thursday, 5.10 p. m., Saturday, 10 a. m. to 1 p. m.

Chemistry

No previous knowledge of chemistry is required. The class-room work will comprise lectures illustrated by experiments and will be supplemented by occasional condensed reviews written at home. The work is based on Remsen's Chemistry (Briefer Course) and will cover the field of inorganic chemistry as far as possible. In the laboratory students will repeat experiments chosen from those performed in the class-room, and will make simple inorganic preparations. Two hours class-work, three hours laboratory work weekly.

A laboratory fee of $5.00 will be charged to cover the cost of chemicals. This fee does not include apparatus, which is loaned with charge for breakage only. (The minimum expense for breakage is $1.63; the average $3.00).

Professor Renouf and Dr. Gilpin. Tuesday and Thursday, 5.10 p. m.; Saturday, 10 a. m. to 1 p. m.

Education

The course offered will present in outline the history of education. It will trace the development of those ideas, practices, and institutions of the past which have been most effective in determining the essential features and problems of education in the present. The work is based on Monroe's Textbook in the History of Education.

Professor Buchner. Tuesday and Friday, 4.10 p. m.

English Composition

This course will include the theory of diction, structure, and the forms of prose composition, with some critical study of selected prose writers. Weekly themes will be required; these will be returned with written criticisms.

Dr. French. Tuesday and Thursday, 5.10 p. m.

English Literature

First half-year: The poems of Chaucer; History of English Literature from the seventh century to about 1500.

Second half-year: The poems of Spenser; History of English verse; History of English Literature from the Renaissance to about 1600,— not including the drama.

Professor Greene. Tuesday and Friday, 5.10 p. m.

French

In French, one of two alternative courses will be offered:

1. A course in the elements of French adapted to those who wish to begin the study of French or who have had

only a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation and composition. The following text books will be used: Fraser and Squair, *French Grammar, Part I;* Labiche, *La Grammaire;* Gréville, *Dosia;* About, *La Mère de la Marquise;* Sandeau, *Mlle. de la Seiglière.*

Associate Professor Brush. Tuesday and Thursday, 4.10 p. m., Saturday, 9.00 a. m.

2. A course in advanced French, corresponding to that college course known as French 2.

The course will include the rapid reading of nineteenth century French authors with especial study of the Romantic and Realistic movements; lectures on the history of French literature; and work in composition based upon Grandgent's *French Composition,* and Comfort's *French Composition.*

Associate Professor Brush. Tuesday and Thursday, 4.10 p. m.

German

In German, one of two alternative courses will be offered:

1. A course similar to undergraduate German 1, consisting of modern prose readings, C. F. Meyer, von Saar, Fulda, Kellar, Sudermann, two hours weekly, and prose composition, one hour weekly.

Professor Wood and Dr. Roulston. Tuesday and Thursday, 4.10 p. m., Saturday, 9.00 a. m.

2. A course for candidates who are able to read and write German with some facility, and who wish to ursue the subject further. Those who absolve course 2 may count courses 1 and 2 for the degree.

For the year 1910-11 the work will be as follows:

(*a*) German Grammar, with especial reference to the rowth and development of Modern German. One hour eekly.

(*b*) The German Drama, from Grillparzer (1816) to the Beginnings of German Naturalism (1885). Written themes in German will be required on subjects suggested by the material read in class. One hour weekly.

Professor Wood. Tuesday and Thursday, 4.10 p. m.

History

In History, one of two alternative courses will be offered, each fundamental in its nature and adapted to the particular needs of those electing it:

1. A course in English History that shall emphasize the general progress of the English people socially, economically, intellectually, and politically as well as their relations with foreign lands. Attention will be called to the great historical collections and some training given in their use. A combination of the library and lecture methods will be adopted.

2. A course in Mediæval History that shall confine itself to characteristic institutions and to great movements. Considerable collateral reading will be required and periodical work with sources made obligatory. A syllabus will be used, but no special text-book.

Associate Professor Abel. Wednesday and Friday, 4.10 p. m.

Latin

The class will meet three hours weekly, through the year. One hour weekly will be devoted to Latin Prose Composition (text-book by Gildersleeve and Lodge, 2nd edition). The remaining time will be given to the following authors: Livy (selections, ed. Burton); Terence (*Phormio,* ed. Laing); Catullus (ed. Merrill). Students will read also privately, for examination, Cicero's *Cato Maior* and one play of Plautus.

Professor Mustard. Tuesday and Thursday, 4.10 p. m Saturday, 9.00 a. m.

Mathematics

1. Algebra and Analytic Geometry.

The first part of the year will be devoted to a study of special topics in Algebra including theory of exponents, theory of logarithms, simultaneous equations, binomial theorem, elements of the theory of equations, and elements of the theory of determinants.

The second part of the year will be devoted to an introductory course in Plane Analytic Geometry including a discussion of the right line and of the circle and other conics as represented by their equations both Cartesian and Polar.

Pre-requisites: Elementary Algebra, Plane Geometry, Plane Trigonometry.

Professor MALTBIE. Tuesday and Thursday, 5.10 p. m., Saturday, 9.00 a. m.

2. Calculus.—An introductory course in Differential and Integral Calculus.

Pre-requisite: Course 1.

Associate Professor BACON. Wednesday and Friday, 5.10 p. m.

COMMENCEMENT

JUNE 14, 1910

The public exercises of the thirty-fourth Commencement were held in the Academy of Music, Tuesday, June 14, 1910, at 4 P. M. The degree of Bachelor of Arts was conferred on fourteen candidates, that of Master of Arts on three, of Doctor of Philosophy upon twenty-three, of Doctor of Medicine upon sixty-nine. The honors of the year and the recent appointments were announced by the President.

The orator of the day was Count Johann Heinrich von Bernstorff, Imperial German Ambassador to the United States, whose subject was the "Historical Development of the German Empire." His address is printed below.

The degree of Doctor of Laws, *honoris causa*, was conferred upon Count von Bernstorff, the presentation being made by Professor Henry Wood, in the following words:

PROFESSOR WOOD'S REMARKS

The distinguished representative of the German government, who is about to address us, can look back upon five generations of statesmen in his family. All of these have filled the highest ministerial and diplomatic positions in the gift of the state, and in view of our hereditary connection with England, it is a matter of especia interest, that the father of the present Count Bernstor was the first ambassador of the new German Empire at the Court of St. James.

Through the whole history of this illustrious family of statesmen runs a strain of high moral endeavor, in nothing more signally displayed than in the abolition of the African slave trade by Denmark, in the year 1792, as a direct result of the efforts of an eminent diplomatist of this family,—a movement which, followed years afterwards by England, associated the two nationalities in the common service of humanity.

This cultivation of closer international relations by the maintenance and furtherance of high ideals is also the dominant feature of the present ambassador's career. By training as well as by temperament a soldier, he was led while still young, to devote himself to the peaceful conquests of diplomacy, and his distinguished services at Constantinople and St. Petersburg, at London and Cairo, resulted in his appointment as ambassador to our government at a comparatively early age.

In less than two years he has familiarized the American public with the thought of the relative responsibility of Germany and the United States as world-powers, and has inspired us with his own hope, that these the two youngest world-powers will also be on terms of the closest friendship.

This conviction and this hope cannot fail to promote still more intimate commercial relations between the two countries, and to insure international peace, on the firm foundation of mutual respect and common ideals of duty and destiny.

Mr. President:

In behalf of the Academic Council, I present Count Johann Heinrich von Bernstorff to you for the Honorary Degree of Doctor of Laws in this University.

President Remsen read a letter from the President of the “Class of 1890” stating that it was the desire of the class to institute a scholarship to be known as the “1890 Scholarship” and to continue through the next five years. This scholarship is to provide free tuition for an undergraduate student, to be selected by the Faculty, without regard to residence. The President stated that the Trustees had gratefully accepted this offer.

In the evening the usual reception to the graduates and their friends was given in McCoy Hall.

HISTORICAL DEVELOPMENT OF THE GERMAN EMPIRE

AN ADDRESS BY

COUNT JOHANN HEINRICH VON BERNSTORFF,

IMPERIAL GERMAN AMBASSADOR

I wish to thank you most sincerely for the privilege of appearing before you today. I very highly appreciate the great honor which this University of world-wide fame has conferred on me. This day is one of the proudest of my life, as it brings me in a lasting connection with this celebrated University which, under the leadership of its distinguished president, has become a centre of light and inspiration to the whole world. I am well aware that, in conferring such a great honor on me, you were less prompted by the wish to recognize my small personal merits than by the desire to express your friendship and sympathy for the nation I have the honor to represent. Such friendship is especially natural at Johns Hopkins University, because here the habits of thought are, more than at any other American University, cast in a German mould, and because in Baltimore so many descendants of the German stock have found a new home and now form a natural bond of an ever increasing friendship between Germany and the United States.

The German Empire of today is very different from the country your German fellow citizens left, and nevertheless it is in many ways still the same, because the political and social structure, which a nation forms, is never the result of arbitrary decision but the outcome of its history and character. This is especially the case in Germany, as our Empire is the work of the greatest statesman Germany has ever produced, who was imbued with the belief in the old rule, that no institution can work well unless it is the natural product of previous historical development.

If we look back 2000 years to the time when the Romans first came in contact with the Teutonic race, we find three facts standing out prominently, in the national character and the institutions of our forefathers, facts which have survived the vicissitudes of many eventful centuries and, though they sometimes disappeared, stand out just as clearly in the German Empire of the present day as in the early ages.

Whilst the national unity of the other great European nations was formed by the blending of various elements, the Germanic race was a unity from the beginning and remained such till later on divisions were brought about by the events of their history. The Germans all claimed descent from a common ancestor, the terrigenous God Tuisco and his son Man. They remained the pure race they had been, because they never, like the Gauls and Britons, suffered conquest by the Romans or other nations.

The second fact, I alluded to, is that the Germans have, from the beginning, always had a sovereign as head of their state. No revolution ever changed this system of government, but no German prince or king of the early ages was an absolute ruler in his land.

This leads me to the third fact, which I will state in the words of an American writer: "The germs of parliamentary institutions are to be found in the forests of ancient Germany. The Roman lawmakers found in Germany a new theory of the state. The Teuton does not derive law directly from the will of the nation; he claims for himself an inborn right, which the State must protect, but which it does not create, and for which he is ready to fight against the world."

When the Germans had overthrown the Roman Empire, their sovereigns took up an idea which later on proved destructive to the natural growth of the nation. I allude to the revival of the imperial idea under the patronage of the church, which for many centuries gave Germany the name of the Holy Roman Empire, and induced its sovereigns to aspire to a universal monarchy instead of consolidating their power within the limits of their own nationality.

We have now come to the time when the feudal system reigned in Europe, correlating with the primitive monetary system of the day, which made paying in kind indispensable. The sovereigns, not being able to pay for services rendered to them, otherwise did so by endowing their nobles with large estates. Such benefices, revocable at pleasure in the beginning, became gradually valid for life and in the end hereditary. The nobles received the land, and accepted in return feudal duties. As long as the sovereigns were powerful, as in the times of the Saxon and Franconian Emperors, the nobles could not place themselves entirely beyond their control. In these times Germany was a more compact state than France. But when the Emperors let themselves be continually entangled in wars outside of Germany to maintain their power in Italy and over the church, they sacrificed their supremacy in their own country to the phantom of universal monarchy. For the assistance rendered them by the territorial Lords they had to add privilege after privilege till there remained but feeble restraints on the real power of their vassals. Thus the Holy Roman Empire was doomed as a political body to become ill beyond hope of recovery.

In the meanwhile the more practical French sovereigns had founded the unity of their nation by the subjection of their vassals. It was only natural, that they now began to prey on the weakness of Germany. Instead of aspiring to a universal monarchy the Emperors now had to defend the German frontiers against the encroachments of a powerful neighbor. The Imperial crown, formerly elective and much coveted by the territorial Lords, had now become practically hereditary in the House of Austria, who had formed a compact particular

State in South Germany. but had little power outside of their own estates. The Empire was now, in truth, little more than the House of Austria, with the prestige which an empty title added, and such aid as it could obtain by threats or bargains from other independent members. In the Imperial Diet which during the last centuries of the Holy Roman Empire resided permanently at Regensburg, all the particular States from the Electorates down to the smallest countries and free cities were represented. Without the consent of this unwieldly Diet the Emperor could not move a soldier except those of his Austrian dominion.

During the religious wars Emperor Ferdinand II made the last attempt to reaffirm the Imperial Power all over Germany. In this case it proved a blessing that he did not succeed, as the triumph of the Imperialists would have meant the destruction of religious freedom. Wallenstein, the great General of the Catholic party, had already subdued all Germany, when he was suddenly dismissed by the Emperor at the instigation of the Catholic princes who were apprehensive of the sudden growth of imperial power. The dismissal of Wallenstein and the intervention of Gustavus Adolphus, the great King of Sweden, decided the victory of the cause of religious freedom. Neither the recall of Wallenstein nor the death of Gustavus Adolphus could stave off the ultimate defeat of the Imperial Idea, and the thirty years' war ended with a large increase of the rights of the particular states which became practically independent and in whose development alone now lay the hope of a better future.

The character of these states had in the meanwhile been very much changed by the introduction of Roman law and the development of the modern monetary system.

The Roman law introduced a set of rules invented for a different society and hostile to the manly spirit of the German people. Roman methods of State pushed themselves deeper in the habits of Public Life. The principle of local self-government expired and the theories of absolutism prevailed. The German states became latinized by the Roman law, a development from which England was saved because in consequence of its insular position it was little disturbed by alien influence and allowed to obey the law of national growth.

The sovereigns of the German particular States were aided in establishing their absolute rule by the modern monetary system, that enabled them to introduce a paid and permanent soldiery. This development did much harm to many parts of Germany, which were ruled by unworthy petty princes, but on the other hand it enabled two of the greatest sovereigns who ever graced a German throne to lay the foundations of a new compact State in the North of Germany. The Great Elector and Frederic the Great were the typical representatives of the form of government which History has termed "Enlightened Absolutism." Imbued with a high sense of responsibility they administered their lands as a trust in a most conscientious manner and never thought of using their absolute power for any other purpose than in the unselfish desire to serve the interests of their people. No man ever worked harder than Frederic the Great who proudly called himself the first servant of the State. These two sovereigns created the State of Prussia, which was able in the seven years' war to stand alone against the whole European continent. When Frederic the Great died, Prussia had become Austria's equal, and from that time dated what was termed the German dualism. Not very much later the German Empire was entirely overthrown by Napoleon, who tried to weaken Germany for ever by endowing the principalities which had competed for influence and authority in the councils of the German Empire with sovereign rights and by aggrandising them at the expense of the two great German powers and of the quite small ones. Napoleon hoped thus to create a balance of power between the particular States which would keep Germany from becoming too strong by preventing it from becoming united. But Napoleon's tyranny was so great that he achieved just the contrary; he aroused the dormant German national feeling, and Prussia, the German State he treated most harshly, became the chief instrument of his downfall. At the first opportunity the Prussian people rose like one man to relieve themselves from the French yoke. This was, however, not their only object. The imagination of all the students and other men of culture who joined Blucher's army as volunteers, was dwelling on the idea of restoring the German Empire, unity and self-government. This idea roused the enthusiasm of the volunteers and lived in verse and song till the day of its realization. It was therefore a great disappointment to the nation, when, at the end of the war of independence which in the nobility of its motives is surpassed by no other in the annals of warfare ancient or modern, none of these objects were attained. National independence was restored, but the jealousy of Germany's neighbors and the rivalry of the two great German Powers prevented any further political progress of the nation. The constitution Germany received was if possible worse than it had been before. The particular States having become sovereign states, there was no room for an Emperor.

The Germanic Confederation created by the Congress of Vienna was only an aggregate of Communities, and Germany remained granulated into many political units. A Diet was instituted at Frankfurt, consisting of delegates of the several Kingdoms, Principalities and Free Cities. In this Congress of envoys from the respective States unanimity of votes was necessary on all important questions, so very little came out of their deliberations. The Austrian delegate presided, and when his views and instructions concurred with those of his Prussian colleague some work was done, as the smaller States did not dare to oppose the two combined great powers. But mostly the delegates wasted their time in political gossip and intrigue, those of the smaller States continually trying to prevent the two great Powers from coming to agreements. The German Nation did not take the slightest interest in these matters and dreaded federal legislation, as the tendencies of the Frankfurt Diet were always reactionary. The atrocities of the French revolution had made continental Governments regard parliamentary institutions as a menace to established order. The German Governments therefore abhorred the idea of a German Parliament and even in the particular States parliamentary institutions were very slowly adopted. The first German Parliament was the result of the unrest which swept over Europe in the year 1848. The Governments did not have the power to oppose the convocation of a Parliament in Frankfurt, where all German States were represented. This Parliament framed a constitution excluding Austria from Germany, and elected the King of Prussia German Emperor. But the constitution was deficient in one of the most essential points. There was no power available to enforce it, as King Frederick William IV of Prussia refused to do so, a fact which has been often regretted, because Germany might otherwise have reaped the benefits of national unity 20 years sooner than it actually did. Frederick William IV was, however, far too conservative to accept the Imperial crown from a Parliament against the will of the other German Sovereigns and to go to war with them and Austria to defend his claim to the Imperial crown. He was, as he once observed, no Frederick the Great, and he had not yet a Bismarck to advise him. So the hopes of the German Nation were again disappointed and the Constitution of the Germanic Confederation continued to be the only link between the particular States. But the great statesman who was selected by Destiny to reunite the German Nation and to regain for it the position in the world to which it had a right by its numbers and qualities, had as a young man closely followed the sad development of these last years. He had learnt that, if Prussia wished to reunite Germany, this object could only be achieved by war. Events had proved that Austria and Prussia could not both be included in the future German Empire. Prussia, as a purely German State, could not be excluded, whilst Austria had by its historical development been led to expand along the Danube and to outgrow the limits of the German nationality. Although Austria's greatest political interests now lay outside of Germany, it could not be expected that the House of Habsburg would waive its old claim to the Imperial crown of Germany without being forced to do so on the battlefield. Likewise the particular German States were not prepared to relinquish their sovereign rights, which Napoleon had given them with the intention of preventing the creation of an efficient German unity. When Bismarck was appointed Prime Minister by King William I of Prussia he proposed reforms of the Constitution of the Germanic Confederation, but without result. Consequently the relations between Prussia and Austria became more and more strained. The last reform Bismarck proposed, before the inevitable war began, aimed at the convocation of a German Parliament elected by manhood suffrage, as it had been provided for by the Constitution of 1848.

I need not speak of the brilliancy of the execution and the suddenness of the results of the campaign of 1866. With a moderation on the part of victorious Prussia, hitherto unknown in history, peace was concluded after a few weeks. Austria was only obliged to sever its links with Germany and to allow Prussia to reconstitute the rest of Germany as a federal State. To show moderation in the season and high tide of success, is one of the surest characteristics of a great statesman, and Bismarck reaped the fruits of this moderation, when only a few years later he was able to renew the old bonds of friendship with Austria which are in our days closer than ever before.

German unity would now have been restored if Napoleon III had not intervened. Bismarck did not wish to risk a second war before having made peace with Austria and having reorganized Germany, so he yielded to the French pressure, and South Germany had in consequence to remain outside of the North German Confederation, which was now created. The river Main formed the frontier between North and South Germany. This French intervention, however, made war with France sooner or later inevitable. The German people could not for ever sacrifice their desire for national unity to foreign wishes. So another victorious campaign was necessary before the German Empire could be re-established. King William I of Prussia now accepted for himself and his descendants the title of German Emperor, which was offered to him by the German Sovereigns and the German Parliament.

In framing the Constitution of the Empire Bismarck showed the same statesmanlike moderation as in his conduct of foreign affairs and so gained the confidence of the Governments of the particular States. While aiming at the establishment of a durable central power, he paid the necessary regard to the existing centrifugal forces. He left to the particular States a sphere of action wide enough to satisfy the deep-rooted local sentiment and yet not so wide as to imperil national unity. Bismarck had in 1866 submitted the draft Constitution to the North German Parliament. He acted in the same way in 1871. After having undergone some minor changes the Constitution was adopted by the first Imperial Parliament as the supreme law of the nation and has since won the respect of our people, because it has its roots deep in the past. Many of you, Ladies and Gentlemen, will have read Alexis de Tocqueville's celebrated book "La démocratic en Amérique," in which he expresses the opinion that the Government of every country should be centralized and the administration decentralized. In general this is the principle on which Bismarck and his legal advisers framed the German Constitution. Under it the particular States have become great self-governing bodies, after having had finally to renounce their sovereignty and having become subject to the federal authority.

The Sovereigns of the particular States, however, retain the rank and all rights of their exalted position, and the political rights of the States are safeguarded by the fact that they share in the sovereignty of the Empire by being represented in the Federal Council.

The common material interests have drawn the citizens of the several States so close together and intermixed them so much, that the unity of the nation is now forever assured. The North and the South of Germany are marked out by some differences, especially the religious one, but these are gradually diminishing in importance. The North has more of the vigorous and practical intelligence, the South more of the poetic and artistic feeling, which explains the historical fact that the political leadership of the nation fell to the share of the North.

I will try to give a brief description of the Imperial Government in following the familiar lines of the Constitution of the United States. For drawing this parallel I claim the authority of one of your most eminent historians, who had much sympathy with German habits of thought and life. George Bancroft has said: "German Institutions and ours most nearly resemble each other. Germany has taken the federative system from us."

All legislative powers are vested in the Federal Council and the Imperial Parliament. For an Imperial law the agreement of the majority of the Federal Council and the Imperial Parliament is requisite and sufficient. Imperial measures after passing the Federal Council and the Imperial Parliament must obtain the sanction of the Emperor and be countersigned by the Imperial Chancellor, but the Emperor has no veto. The Federal Council consists of delegates of the several Kingdoms, Principalities and Free Cities. Each of the 25 States votes as a whole, though the number of their votes is proportioned to their population. The Federal Council is presided over by the Imperial Chancellor, who as Prime Minister of Prussia is the first delegate of the leading Kingdom. The spirit of moderation and reverence for historical development which prompted Bismarck in framing the Constitution is particularly manifested in the fact that the Federal Council is an improved copy of the Frankfurt Diet. As you, Ladies and Gentlemen, will remember, the latter institution did not work, because the States of the Germanic Confederation were Sovereign States and in consequence unanimity of votes was requisite for every important measure. The system of decision by majority had to be introduced and this made it necessary that the particular States should be represented in the Federal Council in proportion to their respective population. This principle strictly adopted would have been inconsistent with the Federative system, because Prussia would continually have commanded the majority of the Federal Council, as the Prussian citizens alone form the majority of the German population. Consequently a compromise was adopted, according to which Prussia has 17 votes, Bavaria 6, Wuerttemberg and Saxony each 4 and so on, the smallest Principalities and Free Cities each having one vote.

The Federal Council is also a supreme administrative and consultative board and as such has nine standing committees.

The Imperial Parliament is elected by manhood suffrage and by ballot. It contains 397 members and can be dissolved by the Federal Council with consent of the Emperor. The members are elected for five years. The Parliament has the same right to initiate bills as the Federal Council.

The Emperor, as executive power, represents the Empire internationally, declares war, concludes peace and enters into alliances and treaties with foreign powers.

He appoints and receives Ambassadors. For a declaration of war the consent of the Federal Council is required, unless an attack has been made upon German territory. The Emperor is the Commander in Chief of the Army and Navy. He convokes, opens, adjourns and closes the Federal Council and the Imperial Parliament; the former must, however, be convoked whenever one-third of the votes demand. The Emperor promulgates the laws and superintends their execution, but, as I mentioned before, he has no veto. The Emperor appoints all Imperial officials, including the Chancellor, who is the only responsible Minister of the Empire.

He cannot be dismissed from his post by any parliamentary vote of want of confidence. He is appointed by the Emperor and can only be dismissed by him. Nevertheless it is obvious, that the Chancellor cannot remain at this post for any length of time if he does not command a majority in the Imperial Parliament, because nearly all bills are prepared by the Chancellor and brought in by him after having been adopted by the Federal Council. If the Imperial Parliament rejects the budget or other important bills the Chancellor can propose to the Federal Council and the Emperor to dissolve Parliament. If, however, such an appeal to the people should fail and the new Parliament again reject the bill at issue, a deadlock would ensue, which might stop the machinery of the Administration, and which could only be overcome by the Emperor appointing another Chancellor. Such a deadlock has never yet occurred, as parliamentary difficulties were always overcome by a successful appeal to the people, by compromise, or by the Chancellor resigning, as in the case of Prince Buelow.

As the Chancellor is responsible to Parliament for Imperial measures he cannot allege as a defence for an act of his the command of the Emperor. If he receives an order of which he disapproves he ought to resign.

Of the judiciary I need say nothing, because the Constitution left this matter to be regulated by Imperial

Legislation and because, with the exception of the Supreme Court of the Empire, all Courts are State Courts.

Ladies and Gentlemen, I will refrain from going into the details of our present Constitution as I am afraid of encroaching on your patience. I mentioned before that it has won the respect of our people, chiefly because it has its roots deep in the past. I should now only like to say a few more words about the forces at work under the present Constitution. Americans are in general inclined to think that the Emperor practically wields autocratic powers, which, as you, Ladies and Gentlemen, will have seen today, is not at all the case. If the authority of the Emperor seems to be greater than it really is under the Constitution of the Empire, this is partly explained by the fact that the Emperor is at the same time the Sovereign of Prussia, the most powerful State of the Empire. Moreover, the House of Hohenzollern has, in the course of Germany's eventful history, rendered such distinguished services to the country that the Emperor retains a very great moral influence over the people, and last, not least, we are fortunate enough to have a Sovereign whose striking personality has obtained a hold on the imagination not only of our own people but also of the whole world.

The Imperial Parliament has not gained so much political influence as it might have done, because it is split up into so many parties that it is very difficult to form a compact majority for any length of time. Nevertheless the Imperial Parliament has done very good work, especially in promoting the unity of the nation. If some of the many political parties could make up their mind to sink minor differences and to combine in large parties, the Imperial Parliament and the democratic forces represented in it would quickly gain an increasing political influence.

DEGREES CONFERRED

Doctor of Philosophy

David Simon Blondheim, of Baltimore, A. B., Johns Hopkins University, 1906. *Subjects:* French, Spanish, and Latin. *Dissertation:* Contributions to French Lexicography based on Rabbinical Sources. *Referees on Dissertation:* Professor Armstrong and Professor Antoine Thomas, of Paris.

Oscar Ellis Bransky, of Baltimore, A. B., Johns Hopkins University, 1907. *Subjects:* Chemistry, Physical Chemistry, and Geology. *Dissertation:* The Diffusion of Crude Petroleum through Fuller's Earth. *Referees on Dissertation:* President Remsen and Dr. Gilpin.

George William Brown, of Baltimore, A. B., Hiram College, 1897. *Subjects:* Sanskrit, Hebrew, and Arabic. *Dissertation:* The Human Body in the Upaniṣads. *Referees on Dissertation:* Professors Bloomfield and Collitz.

William Henry Brown, of Richmond, Va., S. B., Richmond College, 1906. *Subjects:* Botany, Zoology, and Physiology. *Dissertation:* The Development of the Ascocarp of *Lachnea Scutellata*. *Referees on Dissertation:* Professors Johnson and Livingston.

William Mansfield Clark, of Salisbury, Conn., A. B., Williams College, 1907. *Subjects:* Chemistry, Physical Chemistry, and Physics. *Dissertation:* A Contribution to the Investigation of the Temperature Coefficient of Osmotic Pressure. A Redetermination of the Osmotic Pressures of Cane Sugar Solutions at 20°. *Referees on Dissertation:* Professors Morse and H. C. Jones.

Arthur Howard Estabrook, of Leicester, Mass., A. B., Clark University, 1905. *Subjects:* Zoology, Botany, and Physiology. *Dissertation:* Effect of Chemicals on Growth in Paramecium. *Referees on Dissertation:* Professors Jennings and E. A. Andrews.

Rogers Harrison Galt, Jr., of Norfolk, Va., A. B., Johns Hopkins University, 1907. *Subjects:* Physics, Applied Electricity, and Mathematics. *Dissertation:* The Cathode-Ray Fluorescence of Sodium Vapor. *Referees on Dissertation:* Professors Ames and R. W. Wood.

UNIVERSITY OF ILLINOIS

PRESIDENT'S OFFICE

Arthur Mathews Gates, of Waterford, Conn., A. B., Wesleyan University, 1894. *Subjects:* Latin, Greek, and Sanskrit. *Dissertation:* The Form and Use of the Proper Name in Latin Literature. *Referees on Dissertation:* Professors Smith and Wilson.

Benjamin Harrison Grave, of Richmond, Ind., S. B., Earlham College, 1903. *Subjects:* Zoology, Botany and Physiology. *Dissertation:* Anatomy and Physiology of *Atrina* (*Pinna*) *Rigida* (Dillwyn). *Referees on Dissertation:* Professors Jennings and E. A. Andrews.

Joseph Ellis Hodgson, of Stephenson, Va., A. B., Washington and Lee University, 1898. *Subjects:* Mathematics, Physics, and Philosophy. *Dissertation:* Orthocentric Properties of the Plane Directed N-Line. *Referees on Dissertation:* Professor Morley and Dr. Cohen.

Henry Royer Kreider, of Baltimore, A. B., Franklin and Marshall College, 1898. *Subjects:* Chemistry, Physical Chemistry, and Mineralogy. *Dissertation:* The Dissociation of Electrolytes in Non-Aqueous Solvents as determined by the Conductivity and Boiling-Point Methods. *Referees on Dissertation:* Professors Morse and H. C. Jones.

Andrew Hoffman Krug, of Baltimore, A. B., St. John's College, 1901. *Subjects:* English, French, and Philosophy. *Dissertation:* Wordsworth's Indebtedness to Akenside, Beattie, and Cowper, and a Theory of Energy in "The Prelude." *Referees on Dissertation:* Professors Bright and Browne.

Thomas Albert Lewis, of Dawn, Mo., A. B., William Jewell College, 1905. *Subjects:* Philosophy, Experimental Psychology, and Biology. *Dissertation:* The Belief Element in Judgment. *Referees on Dissertation:* Professor Buchner and Dr. Furry.

Homer Payson Little, of Dalton, Mass., A. B., Williams College, 1906. *Subjects:* Geology, Mineralogy, and Physical Chemistry. *Dissertation:* The Physical Features of Anne Arundel County, Maryland. *Referees on Dissertation:* Professor Clark and Mr. Berry.

Sylvester Kline Loy, of Virginsville, Pa., A. B., Franklin and Marshall College, 1905. *Subjects:* Chemistry, Physical Chemistry, and Mineralogy. *Dissertation:* The Reactions of Sodium Ethylate with Alkyl Halides. *Referees on Dissertation:* President Remsen and Professor Acree.

Chester Newton Myers, of Valley Falls, N. Y., A. B., Williams College, 1906. *Subjects:* Chemistry, Physical Chemistry, and Physics. *Dissertation:* Deposition of Copper Ferrocyanide Membrane by the Electrolytic Method. *Referees on Dissertation:* Professors Morse and H. C. Jones.

HENRY CLARENCE ROBERTSON, JR., of Spartanburg, S. C., A. B., Wofford College, 1905. *Subjects:* Chemistry, Physical Chemistry, and Biology. *Dissertation:* The Reactions of Alkyl Halides with Sodium Phenolate. *Referees on Dissertation:* President Remsen and Professor Acree.

JOSEPH EUGENE ROWE, of Emmitsburg, Md., A. B., Pennsylvania College, 1904. *Subjects:* Mathematics, Physics, and Astronomy. *Dissertation:* A Complete System of Invariants for the Plane Rational Quartic Curve, and other Facts in regard to Rational Curves. *Referees on Dissertation:* Professors Morley and Coble.

KARL SINGEWALD, of Baltimore, A. B., Johns Hopkins University, 1907. *Subjects:* Political Science, Law, and History. *Dissertation:* The Doctrine of Non-Suability of the State in the United States. *Referees on Dissertation:* Professor Willoughby and Dr. Dodd.

EDWARD RAYMOND TURNER, of Baltimore, A. B., St. John's College, 1904. *Subjects:* History, Political Economy, and Philosophy. *Dissertation:* Slavery, Servitude, and Freedom of the Negro in Pennsylvania. *Referees on Dissertation:* Professors C. M. Andrews and Ballagh.

ANTHONY PELZER WAGENER, of Charleston, S. C., A. B., College of Charleston, 1906. *Subjects:* Latin, Greek, and Sanskrit. *Dissertation:* Popular Associations of Right and Left in Roman Literature. *Referees on Dissertation:* Professors Smith and Wilson.

GEORGE FREDERIC WHITE, of Franklin Park, Mass., S. B., Massachusetts Institute of Technology, 1906. *Subjects:* Chemistry, Physical Chemistry, and Biology. *Dissertation:* The Conductivity and Dissociation of Organic Acids in Aqueous Solution at different Temperatures. *Referees on Dissertation:* Professors Morse and H. C. Jones.

CHARLES BRANCH WILSON, of Westfield, Mass., A. B., Colby College, 1881. *Subjects:* Zoology, Physiology, and Botany. *Dissertation:* The Development of *Achtheres Amblopiitis* Kellicott. *Referees on Dissertation:* Professors E. A. Andrews and Jennings.

(23)

DOCTOR OF MEDICINE

MARY DAYTON ALLEN, of Holland Patent, N. Y., A. B., Mt. Holyoke College, 1905.

EDWARD MCPHERSON ARMSTRONG, of Hagerstown, Md., A. B., Princeton University, 1904; B. Sc., University of Oxford, 1908.

MOSES HAVEN BAKER, of Stockwell, Ind., S. B., Purdue University, 1905.

HENRY GRAY BARBOUR, of Hartford, Conn., A. B., Trinity College (Conn.), 1906.

EMIL BOEHM, of St. Louis, Mo., S. B., St. Louis University, 1906.

WILLIAM SYMINGTON BOLE, of Bozeman, Mont., S. B., Montana Agricultural College, 1906.

CARL FERDINAND BOOKWALTER, of Danville, Ill., S. B., Purdue University, 1900.

ETHAN FLAGG BUTLER, of Washington, D. C., A. B., Princeton University, 1906.

WALTER AUSTIN CALIHAN, of Rochester, N. Y., A. B., University of Rochester, 1906.

ROSS STAGG CARTER, of San Diego, Cal., A. B., Leland Stanford Jr. University, 1905.

THOMAS RODNEY CHAMBERS, of Baltimore, A. B., Johns Hopkins University, 1906.

JOSEPH LYNN CHOATE, of Los Angeles, Cal., A. B., Leland Stanford Jr. University, 1906.

CLAUDE CARR CODY, JR., of Georgetown, Texas., A. B., Southwestern University, 1904.

HENRY THEODORE COLLENBERG, of Baltimore, A. B., Johns Hopkins University, 1906.

HASKETT LYNCH CONNER, of New Albany, Ind., A. B., De Pauw University, 1906.

HENRY NICHOLAS COSTELLO, of Hartford, Conn., A. B., Yale University, 1906.

WALTER EDWARD DANDY, of Sedalia, Mo., A. B., University of Missouri, 1907.

CLINTON DEMAS DEMING, of Hartford, Conn., A. B., Yale University, 1907.

BERNARD SOLOMON DENZER, of New York City, A. B., Columbia University, 1906.

THOMAS ALAN DEVAN, of New Brunswick, N. J., S. B., Rutgers College, 1906.

BARUCH MORDECAI EDLAVITCH, of Baltimore, A. B., Johns Hopkins University, 1906.

RALPH LANDIS ENGLE, of Palmyra, Pa., A. B., Lebanon Valley College, 1905.

HORACE BURNETT FENTON, of Portland, Ore., A. B., University of Oregon, 1906.

EDGAR LORRINGTON GILCREEST, of Gainesville, Tex., A. B., University of Texas, 1906.

Hyman Ginsberg, of De Funiak Springs, Fla., S. B., University of Georgia, 1906.

Lemuel Whittington Gorham, of Albany, N. Y., A. B., Yale University, 1906.

William Lawrence Grimes, of Lexington, N. C., S. B., University of North Carolina, 1906.

Crowell Clairinton Hall, Jr., of Dover, Me., A. B., Bowdoin College, 1906.

Runkle Fisher Hegeman, of New Germantown, N. J., A. B., Princeton University, 1906.

Henry Gildersleeve Jarvis, of Gildersleeve, Conn., A. B., Yale University, 1906.

Albert Eugene Johann, of Canton, Mo., A. B., Christian University, 1906.

Samuel Laban Ledbetter, Jr., of Birmingham, Ala., S. B., University of Alabama, 1906.

Ralph Herman Major, of Liberty, Mo., A. B., William Jewell College, 1902.

Albert Francis Mattice, of Sedro, Wash., S. B., South Dakota Agricultural College, 1904.

Sydney Robotham Miller, of Newark, N. J., S. B., New York University, 1905.

Dana Elbra Monroe, of Cameron, Tex., A. B., University of Texas, 1906.

Raymond Bartlett Morris, of Olean, N. Y., A. B., Yale University, 1907.

Angus Washburn Morrison, of Minneapolis, Minn., A. B., Yale University, 1906.

Douglass Howell Morse, of San Francisco, Cal., S. B., University of California, 1907.

James Craig Neel, of Marietta, O., Ph. B., Marietta College, 1906.

William Bradford Newcomb, of Sassafras, Va., A. B., College of William and Mary, 1906.

Firmadge King Nichols, of Baltimore, A. B., Johns Hopkins University, 1906.

Samuel Timothy Nicholson, Jr., of Bath, N. C., A. B., University of North Carolina, 1906.

Willey Higby Norton, of Athens, O., A. B., Ohio University, 1906.

Thomas Grover Orr, of Bosworth, Mo., A. B., University of Missouri, 1907.

Jean Paul Pratt, of Wellington, O., A. B., Ohio State University, 1906.

Chesney Macauley Ramage, of Fairmont, W. Va., S. B., West Virginia University, 1907.

Robert Lewis Rhodes, of Louisville, Ga., A. B., Emory College, 1906.

Harry Hungate Robinson, of Walla Walla, Wash., A. B., University of Michigan, 1907.

Walter Black Rogers, of Washington, Pa., A. B., Washington and Jefferson College, 1906.

Alice Rohdé, of Chicago, Ill., S. B., University of Chicago, 1903.

James Wendel Rosenfeld, of Portland, Ore., A. B., Leland Stanford Jr. University, 1906.

Raymond Sanderson, of Indianola, Fla., S. B., Princeton University, 1905.

Raphael Eustace Semmes, Jr., of Memphis, Tenn., A. B., University of Missouri, 1907.

Herbert Milford Senseny, of Cleveland, O., A. B., Adelbert College, 1906.

John William Sheetz, of New Oxford, Pa., Ph. B., Franklin and Marshall College, 1906.

Henry Augustus Stephenson, of Homeville, Va., A. B., Randolph-Macon College, 1906.

Howard Lester Taylor, of Weeseville, N. Y., A. B., Oberlin College, 1906.

William Lawson Thornton, of Talladega, Ala., S. B., Alabama Polytechnic Institute, 1903.

Thomas Palmer Tredway, of Fawn Grove, Pa., A. B., Western Maryland College, 1906.

Arthur de Talma Valk, of Annapolis, Md., A. B., St. John's College, 1906.

Herbert Francis Vanorden, of São Paulo, Brazil, Ph. B., Yale University, 1907.

Clyde Emil Watson, of Kingwood, W. Va., S. B., West Virginia University, 1905.

Helen Watson, of East Braintree, Mass., A. B., Wellesley College, 1905.

Milton Weinberg, of Manning, S. C., A. B., University of South Carolina, 1906.

Theodore Henry Wenning, of Cincinnati, O., A. B., St. Xavier College, 1904.

Miley Barton Wesson, Jr., of El Paso, Tex., S. B., University of Texas, 1902.

James Harvey Whitcraft, of Carrollton, O., S. B., University of Wooster, 1905.

Luke V. Zartman, of Columbus, O., A. B., Ohio State University, 1906.

MASTER OF ARTS

FRANK GOTTLOB BREYER, of Baltimore, A. B., Johns Hopkins University, 1908. *Subjects:* Chemistry, Physical Chemistry, and Physics. *Essay:* The Fixation of Atmospheric Nitrogen, particularly in the Manufacture of Nitric Acids and Nitrates. *Referees on Essay:* Professors H. C. Jones and Renouf.

WILLIAM STUART GORTON, of Baltimore, A. B., Johns Hopkins University, 1908. *Subjects:* Physics, Applied Electricity, and Mathematics. *Essay:* Properties of Dielectrics at High Voltages. *Referees on Essay:* Professors Ames and Whitehead.

JOHN B. LALIME, of Montreal, Canada, A. B., Laval University, 1900. *Subjects:* Physics, Physical Chemistry, and Applied Electricity. *Essay:* Electric Oscillations. *Referees on Essay:* Professors Ames and Whitehead.

(3)

BACHELOR OF ARTS

OTIS HERBERT DRAPER, of Baltimore County, Md.
RAYMOND FON DERSMITH GABLE, of York, Pa.
JOHN MALLORY HOLMES, of Baltimore.
CARL HENRY LEVAN, of Baltimore.
NORMAN CLYDE MARVEL, of Talbot County, Md.
AUSTIN RALPH MIDDLETON, of Baltimore.
FRANCIS KEY MURRAY, of Howard County, Md.
AARON ROBINSON, of Baltimore.
GILBERT WHITE ROSENTHAL, of Baltimore.
GEORGE ROSS VEAZEY, of Baltimore.
AUGUST VOGELER, of Baltimore County, Md.
BENJAMIN FRANKLIN WALLIS, of Baltimore.
THEODORE SINCLAIR WILL, of Baltimore.
ALAN CHURCHILL WOODS, of Baltimore.

(14)

NEW APPOINTMENTS, PROMOTIONS, AND HONORS ANNOUNCED

IN THE PHILOSOPHICAL FACULTY

HERBERT S. JENNINGS, Ph. D., now Professor of Experimental Zoology, to be Henry Walters Professor of Zoology and Director of the Biological Laboratory.

ARTHUR O. LOVEJOY, A. M., Professor of Philosophy.

CHARLES K. SWARTZ, Ph. D., now Associate Professor, to be Collegiate Professor of Geology.

JOHN B. WHITEHEAD, Ph. D., now Associate Professor, to be Professor of Applied Electricity.

JAMES E. SHAW, Ph. D., now Associate, to be Associate Professor of Italian.

LOUIS ADOLPHE TERRACHER, Associate Professor of French Literature.

HERBERT D. AUSTIN, A. M., Instructor in French.

EDWARD W. BERRY, now Instructor, to be Associate in Paleobotany.

RHEINART P. COWLES, Ph. D., now Instructor, to be Associate in Biology.

KNIGHT DUNLAP, Ph. D., now Instructor, to be Associate in Psychology.

WILLIAM W. HOLLAND, Ph. D., now Assistant, to be Associate in Chemistry.

RALPH V. D. MAGOFFIN, Ph. D., now Instructor, to be Associate in Greek and Roman History.

CARROLL M. SPARROW, A. B., now Fellow, to be Instructor in Physics.

IN THE MEDICAL FACULTY

SAMUEL AMBERG, M. D., now Associate, to be Associate Professor of Pediatrics.

WILLIAM S. BAER, M. D., now Associate, to be Associate Professor of Orthopedic Surgery.

DONALD R. HOOKER, M. D., now Associate, to be Associate Professor of Physiology.

CARL VOEGTLIN, Ph. D., now Associate, to be Associate Professor of Pharmacology.

GEORGE H. WHIPPLE, M. D., now Associate, to be Associate Professor of Pathology.

ELIOT R. CLARK, M. D., now Instructor, to be Associate in Anatomy.

Herbert M. Evans, M. D., now Instructor, to be Associate in Anatomy.

John T. Geraghty, M. D., now Instructor, to be Associate in Genito-Urinary Surgery.

Francis C. Goldsborough, M. D., now Instructor, to be Associate in Obstetrics.

John H. King, M. D., now Instructor, to be Associate in Pathology.

Arthur H. Koelker, Ph. D., now Instructor, to be Associate in Physiological Chemistry.

William L. Moss, M. D., now Instructor, to be Associate in Medicine.

Leonard G. Rowntree, M. D., now Instructor, to be Associate in Experimental Therapeutics.

Milton C. Winternitz, M. D., now Instructor, to be Associate in Pathology.

Paul W. Clough, M. D., now Assistant, to be Instructor in Medicine.

Ernest K. Cullen, M. D., Instructor in Gynecology.

Charles R. Essick, M. D., now Assistant, to be Instructor in Anatomy.

Clyde G. Guthrie, M. D., now Assistant, to be Instructor in Medicine.

Arthur H. Morse, M. D., to be Instructor in Obstetrics.

Frank J. Sladen, M. D., now Assistant, to be Instructor in Medicine.

Thomas P. Sprunt, M. D., now Assistant, to be Instructor in Pathology.

Howard E. Ashbury, M. D., to be Assistant in Surgery.

Charles R. Austrian, M. D., to be Assistant in Medicine.

Walter A. Baetjer, M. D., to be Assistant in Medicine.

George S. Bond, M. D., now Voluntary Assistant, to be Assistant in Medicine.

William E. Burge, Ph. D., to be Assistant in Physiology.

Trigant Burrow, M. D., Ph. D., to be Assistant in Medicine.

Samuel J. Crowe, M. D., to be Assistant in Surgery.

Walter E. Dandy, M. D., to be Assistant in Surgery.

Franklin Hazlehurst, Jr., M. D., to be Assistant in Laryngology and Rhinology.

F. McPhedran, M. D., to be Assistant in Medicine.

J. T. Sample, M. D., to be Assistant in Medicine.

Martin F. Sloan, M. D., to be Assistant in Medicine.

Hedley V. Tweedie, M. D., to be Assistant in Ophthalmology and Otology.

Ernest I. Werber, Ph. D., to be Assistant in Anatomy.

Karl M. Wilson, M. D., to be Assistant in Obstetrics.

JOHNSTON SCHOLARSHIPS

HENRY E. JOHNSTON SCHOLAR

Joseph Theophilus Singewald, Jr., A. B., Johns Hopkins University, 1906, Fellow, 1907-08, and Ph. D., 1909. *Geology.*

JAMES BUCHANAN JOHNSTON SCHOLAR

Robert Lee Ramsay, A. B., Fredericksburg College, 1899; Fellow, Johns Hopkins University, 1904-05, Ph. D., 1905, and Assistant, 1905-07; Instructor in English, University of Missouri, 1907-09. *English.*

HENRY E. JOHNSTON JR. SCHOLAR

Ebenezer Emmet Reid, A. M., Richmond College, 1892; Fellow, Johns Hopkins University, 1897-98, and Ph. D., 1898; Professor of Chemistry, Baylor University, 1901-08. *Chemistry.*

FELLOWSHIPS

ADAM T. BRUCE FELLOW

William Henry Brown, of Richmond, Va., S. B., Richmond College, 1906; Fellow, Johns Hopkins University, 1909-10, and Ph. D., 1910. *Botany.*

UNIVERSITY FELLOWS

Henry Gray Barbour, of Hartford, Conn., A. B., Trinity College (Conn.), 1906; M. D., Johns Hopkins University, 1910. *Pathology.*

Samuel Claggett Chew, Jr., of Baltimore, A. B., Johns Hopkins University, 1909. *English.*

William Sherwood Fox, of Brandon, Manitoba, A B., McMaster University, 1900. *Classical Archaeology.*

William Stuart Gorton, of Baltimore, A. B., Johns Hopkins University, 1908. *Physics.*

Clarence Pembroke Gould, of Baltimore, A. B., Johns Hopkins University, 1907. *History.*

Gustav Grünbaum, of Bucarest, Roumania, University of Bucarest. *Romance Languages.*

J. Sam Guy, of Fredericksburg, Va., S. B., Davidson College, 1905. *Chemistry.*

Ernest Leslie Highbarger, of Rockford, Ill., A. B., Mt. Morris College, 1908. *Greek.*

Sarah Fenton Hoyt, of New York, A. B., Barnard College, 1905; B. D., Union Theological Seminary (N. Y.), 1908. *Semitic Languages.*

Nathaniel Edward Loomis, of Randolph, Wis., S. B., Beloit College, 1908; M. S., Syracuse University, 1909. *Chemistry.*

Frank Abbott Magruder, of Woodstock, Va., A. B., Washington and Lee University, 1905. *Political Science.*

Joseph Llewellyn McGhee, of Emory, Va., A. B., Hiwassee College, 1893, and Emory and Henry College, 1903. *Chemistry.*

John Beaver Mertie, Jr., of Raton, N. Mex., A. B., Johns Hopkins University, 1908. *Geology.*

Charles Ferdinand Meyer, of Baltimore, A. B., Johns Hopkins University, 1906. *Physics.*

Harry Hess Reichard, of Hellertown, Pa., A. B., Lafayette College, 1901. *German.*

C. F. Curtis Riley, of Mankato, Minn., A. B., Doane College, 1901, and University of Michigan, 1904. *Zoology.*

Thomas DeCoursey Ruth, of Baltimore, A. B., Johns Hopkins University, 1906. *Latin.*

Joshua Irving Tracey, of Upperco, Md., S. B., Dickinson College, 1906. *Mathematics.*

John Linck Ulrich, of Baltimore, S. B., University of Pennsylvania, 1908. *Psychology.*

French Eugene Wolfe, of Dryden, Va., A. B., Emory and Henry College, 1907. *Political Economy.*

PRIZES

THE JOHN MARSHALL PRIZE

The John Marshall Prize for the year 1910 has been awarded to George Ernest Barnett (Ph. D., 1901), in recognition of the value of his work entitled "The Printers: A Study in American Trade Unionism." This prize consists of a bronze likeness of Chief Justice Marshall, and has been awarded annually to a graduate of the university who had produced the best work during the preceding year upon some subject in historical or political science.

THE MALLOCH PRIZE

The Medical Faculty received during the session 1908-1909 the sum of one hundred and fifty dollars from Dr. A. E. Malloch, of Hamilton, Ontario, with the request that it be awarded as a prize to the student presenting in competition the best essay upon "The Life and Work of Lister." The gift was accepted by the Faculty and the announcement was made that the prize would be awarded in February, 1910. The nine essays received were examined by a Committee appointed by the Faculty, who, by unanimous vote, awarded the prize to Mr. Charles Chauncey Winsor Judd. The successful essay will be published in the Johns Hopkins Hospital Bulletin.

THE JOSEPH KERNOCHAN GARR SCHOLARSHIP

Through the liberality of Mrs. Henry Lee Smith, of Baltimore, the Medical Faculty is authorized to provide a scholarship amounting to one hundred dollars a year to aid a deserving student. The scholarship is to be known as the Joseph Kernochan Garr Scholarship, and it has been awarded this year to Mr. NORMAN HARRIS WILLIAMS.

THE SEVERN TEACKLE WALLIS MEMORIAL PRIZE

This prize was established in 1905 by the Wallis Memorial Association, of Baltimore. It consists of fifty dollars in money, and is offered to an undergraduate or a graduate student of the university for an essay on some subject connected with Spanish Literature or History, or for some original work done in either of said subjects. The award this year is made to ELMER LEWIS GREENSFELDER, of the third-year class of undergraduates, for his essay entitled "Lazarillo de Tormes."

HONORS OF THE MEDICAL STUDENTS

The following list includes the first twenty-five members of the graduating class in Medicine, arranged in order of merit. From this list appointments as Resident House Officers in the Johns Hopkins Hospital will be made by the Trustees of the Hospital.

L. W. GORHAM.
H. B. FENTON.
S. R. MILLER.
MISS M. D. ALLEN.
MISS H. WATSON.
R. H. MAJOR.
R. F. HEGEMAN.
A. W. MORRISON.
T. A. DEVAN.
J. P. PRATT.
E. McP. ARMSTRONG.
J. W. ROSENFELD.
A. DET. VALK.
T. H. WENNING.
R. E. SEMMES, JR.
D. H. MORSE.
W. E. DANDY.
J. W. SHEETZ.
R. L. ENGLE.
J. C. NEEL.
M. H. BAKER.
H. A. STEPHENSON.
W. B. NEWCOMB.
M. B. WESSON, JR.
A. E. JOHANN.

HOPKINS SCHOLARSHIPS

These scholarships, in accordance with the wishes of the founder, are awarded to candidates from Maryland, Virginia, and North Carolina who are considered to be the "most deserving of choice because of their character and intellectual promise."

TO GRADUATE STUDENTS FROM NORTH CAROLINA AND VIRGINIA

F. ALLISON, of Virginia (A. B., Emory and Henry, 1904).

T. B. ASHCRAFT, of North Carolina (A. B., Wake Forest, 1906).

R. BINFORD, of North Carolina (S. B., Earlham, 1901).

J. R. BOOTH, of Virginia (A. B., Randolph-Macon, 1907).

N. M. CANTER, of Virginia (A. B., Randolph-Macon, 1909).

A. COLEMAN, of Virginia (A. B., Univ. of Virginia, 1901).

C. W. COOKE, of Virginia (A. B., Johns Hopkins, 1908).

P. B. DAVIS, of Virginia (A. B., Roanoke, 1908).

T. W. DICKSON, of North Carolina (A. B., Univ. of North Carolina, 1907).

P. S. FLIPPIN, of Virginia (A. B., Richmond College, 1906).

O. C. FOOTE, of North Carolina (A. B., Wake Forest, 1906).

W. L. GILLS, of Virginia (A. B., Randolph-Macon, 1905).

JULIA P. HARRISON, of Virginia (A. B., Richmond, 1906).

O. B. HOPKINS, of Virginia (A. B., Johns Hopkins, 1909).

O. KINSEY, JR., of North Carolina (A. B., Univ. of Virginia, 1907).

G. A. L. KOLMER, of Virginia (A. B., Roanoke, 1907).

C. O. MEREDITH, of North Carolina (A. B., Guilford, 1900).

E. L. MORGAN, of North Carolina (S. B., Wake Forest, 1907).

G. W. MORRIS, of Virginia (A. B., Washington and Lee).

H. H. NEWMAN, of Virginia (A. B., Randolph-Macon, 1909).

J. W. NOWELL, of North Carolina (A. B., Wake Forest, 1903).

L. W. PARKER, of North Carolina (A. B., Univ. of North Carolina, 1907).

G. G. PEERY, of Virginia (A. B., Roanoke, 1905).

W. A. PRICE, of Virginia (A. B., Davidson, 1909).

O. P. RHYNE, of North Carolina (A. M., Univ. of North Carolina, 1909).

J. H. RUSSELL, of Virginia (A. B., Emory and Henry, 1907).

E. F. SHEWMAKE, of Virginia (A. B., William and Mary, 1908).

W. E. SPEAS, of North Carolina (A. B., Wake Forest, 1907).

T. STEARNS, of North Carolina (A. B., Davidson, 1906).

E. P. WIGHTMAN, of Virginia (A. B., Richmond College, 1908).

S. J. WILLIAMS, of Virginia (A. B., William and Mary, 1908).

LULA G. WINSTON, of Virginia (S. B., Richmond College, 1899).

TO UNDERGRADUATES FROM MARYLAND

THIRD YEAR

EDWARD HENRY SEHRT.
JOSEPH NOBLE STOCKETT, JR.
EDWARD OLSON HULBURT.
LINGURN BURKHEAD BOBBITT.

SECOND YEAR

ELLIS MILLER.
EDWIN CHARLES WHITE.
HOWARD HUNTLEY LLOYD.
BERTRAM BENEDICT.

FIRST YEAR

JULIAN DUCKER SEARS.
JOHN SHARPE DICKINSON.
EDWARD NOVAK.
JOHN CURLETT MARTIN.

HONORS OF THE UNDERGRADUATES

The following students are entitled to honorable mention:

IN THE GRADUATING CLASS

GILBERT WHITE ROSENTHAL.

IN THE THIRD-YEAR CLASS

EDWARD HENRY SEHRT.
JOSEPH NOBLE STOCKETT, JR.
EDWARD OLSON HULBURT.
LINGURN BURKHEAD BOBBITT.
CALVIN HOOKER GODDARD.
HAROLD BROOKS HERING.

IN THE SECOND-YEAR CLASS

ELLIS MILLER.
EDWIN CHARLES WHITE.
HOWARD HUNTLEY LLOYD.
BERTRAM BENEDICT.
FERDINAND CHRISTIAN KUEHN.
WILLIAM OSWALD WEYFORTH, JR.
LEO WOLMAN.
ARTHUR FEDDEMAN GORTON.
THOMAS BROOKE PRICE.
HARRY MILTON WAGNER, JR.
ADOLPH LOUIS TAYLOR STARCK.
MAX GEORGE PAULUS.

IN THE FIRST-YEAR CLASS

JULIAN DUCKER SEARS.
JOHN SHARPE DICKINSON.
EDWARD NOVAK.
JOHN CURLETT MARTIN.
ABEL WOLMAN.

PROCEEDINGS OF SOCIETIES

Philological Association:

March 18, 1910.—Two hundred and sixty-first regular meeting. Professor GILDERSLEEVE in the chair. Attendance, 35.

Micah's Capucinade. P. HAUPT.

Changes in Verse Technique in Sixteenth Century English Drama. R. L. RAMSAY.

April 15, 1910.—Two hundred and sixty-second regular meeting. Professor GILDERSLEEVE in the chair. Attendance, 29.

Decipherment of the Johns Hopkins Curse-Tablets. W. S. FOX.

May 20, 1910.—Two hundred and sixty-third regular meeting. Professor GILDERSLEEVE in the chair. Attendance, 21.

Repeated Verses in the *Rig-Veda.* M. BLOOMFIELD.

Historical and Political Science Association:

March 18, 1910.—The Work of the National Monetary Commission. Hon. A. P. ANDREW, Director of the U. S. Mint and Special Assistant to the Monetary Commission.

Brady's The South African Union. G. M. GRIFFITH.

Slater's English Peasantry and the Enclosure of Common Fields. C. P. GOULD.

St. Ledger's Australian Socialism. F. E. WOLFE.

April 15, 1910.—Liberia. ROLAND P. FALKNER, Esq., U. S. Commissioner to Liberia.

Chadwick's The Relations of the United States with Spain: Diplomacy. W. B. HUNTING.

Putnam's Abraham Lincoln. F. G. HOLMES.

May 13, 1910.—Manuscripts. Mr. GAILLARD HUNT, of the Library of Congress.

Trevelyan's Garibaldi and the Thousand. W. V. JOHNSON.

Maitland's Equity. J. P. WRIGHT.

Scientific Association:

February 24, 1910.—Methods of Examining Fungi for Poisons. W. W. FORD.

Recent Work on the Absorption Spectra of Solutions. W. W. STRONG.

Two Methods of copying Rowland's Gratings. J. A. ANDERSON.

March 9, 1910.—Halley's Comet. J. S. AMES.

April 7, 1910.—Surgery of the Blood Vessels, particularly the Thoracic and Abdominal Aorta. W. S. HALSTED.

Methods of Performing Operations on the Brain. H. W. CUSHING.

Correction of Rowland's Standard Wave-lengths of Light. A. H. PFUND.

April 13, 1910.—Movements of the Ground at the San Francisco Earthquake. H. F. REID.

The New Edison Storage Battery. J. B. WHITEHEAD.

The experimental psychologists of the eastern portion of the United States held their annual informal meeting in the psychological laboratory of this university April 19, 20, 21, 1910. The meeting was attended by about twenty psychologists.

JOHNS HOPKINS UNIVERSITY CIRCULAR, No. 227

JULY, 1910

CONTENTS

PAGE
CALENDAR, ... 2
GENERAL STATEMENTS AS TO THE COURSES OF INSTRUCTION, . 3
FACULTIES OF PHILOSOPHY AND MEDICINE, 1910-11, . . 5
PROGRAMMES FOR 1910-11:
  Mathematics, ... 10
  Physics and Astronomy, ... 13
  Chemistry, ... 17
  Geology, ... 21
  Zoology and Botany, ... 25
  Physiology, ... 30
  Greek, ... 31
  Latin, ... 33
  Classical Archæology and Art, ... 35
  Sanskrit and Comparative Philology, ... 38
  Modern Russian, ... 41
  Oriental Seminary, ... 42
  English, ... 45
  German, ... 48
  Romance Languages, ... 52
  History, ... 56
  Political Economy, ... 60
  Political Science, ... 63
  Philosophy, Psychology, and Education, ... 65
LECTURES ON ILLUMINATING ENGINEERING, ... 68
COLLEGE COURSES FOR TEACHERS, ... 72
COMMENCEMENT, 1910: 84
  Address by the German Ambassador, ... 87
  Degrees Conferred, ... 100
  Appointments and Honors, ... 107
PROCEEDINGS OF SOCIETIES, ... 114

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Studies in Honor of Professor Gildersleeve. 527 pp. 8vo. $6.

The Physical Papers of Henry A. Rowland. 716 pp. 8vo. $7.50.

The Oyster. By W. K. Brooks. 225 pp. 8vo. $1.

Ecclesiastes: A New Metrical Translation. By Paul Haupt. 50 pp. 8vo. 50 cents.

The Book of Nahum: A New Metrical Translation. By Paul Haupt. 53 pp. 8vo. 50 cents.

Ancient Sinope. By David M. Robinson. 112 pp. 8vo. $1.

Notes on Stahl's Syntax of the Greek Verb. By Basil L. Gildersleeve. 65 pp. 50 cents.

The Hague Peace Conferences of 1899 and 1907. By James Brown Scott. Vol. I, The Conferences, 887 pp.; Vol. II, Documents, 548 pp. 8vo. $5

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UNIVERSITY OF ILLINOIS

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1911 No. 6

THE

JOHNS HOPKINS UNIVERSITY CIRCULAR

PROGRAMMES OF COURSES

COLLEGE COURSES FOR TEACHERS

BALTIMORE, MARYLAND
PUBLISHED BY THE UNIVERSITY
ISSUED MONTHLY FROM OCTOBER TO JULY
JUNE, 1911

[New Series, 1911, No. 6]
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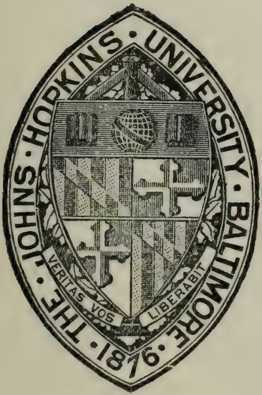
PROGRAMMES OF COURSES

1911-12

COLLEGE COURSES FOR TEACHERS

1911-12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BALTIMORE
The Johns Hopkins Press
1911

CALENDAR, 1911-1912

1911

Wednesday, July 5–Wednesday, August 16—Summer Session.

Tuesday-Friday, September 26-29—Entrance Examinations of Undergraduates.

Tuesday, October 3—Instruction begins.

Tuesday, October 10—College Courses for Teachers begin.

Thursday, November 30—Thanksgiving Day. All classes suspended.

Saturday, December 16—Last day for application for the University Scholarships.

Tuesday–Friday, December 19–22—Undergraduate Examinations.

Saturday, December 23—The Christmas Recess begins.

Monday, December 25—Christmas Day.

1912

Tuesday, January 2—Instruction resumed.

Thursday, February 22—Commemoration Day. All classes suspended. Public exercises at 11 o'clock.

Monday, April 1—Last day for application for the Johnston Scholarships and the Bruce Fellowship.

Friday, March 30–Wednesday, April 3—Undergraduate Examinations.

Thursday, April 4—The Easter Recess begins.

Thursday, April 11—Instruction resumed.

Wednesday, May 1—Last day for application for the University Fellowships.

Wednesday, May 1—Last day for application for the Hopkins Scholarships offered to graduate students from North Carolina and Virginia.

Friday, May 30–Thursday, June 6—Final Undergraduate Examinations.

Saturday, June 1—College Courses for Teachers close.

Monday–Thursday, June 3–6—Oral Examinations for the Degree of Doctor of Philosophy.

Tuesday–Friday, June 4–7—Entrance Examinations of Undergraduates.

Tuesday, June 11—Commencement Day. Public exercises at 4 o'clock.

Tuesday–Friday, September 24–27—Entrance Examinations of Undergraduates.

Tuesday, October 1—Instruction begins.

Thursday, November 28—Thanksgiving Day. All classes suspended.

Saturday, December 14—Last day for application for the University Scholarships.

Tuesday, December 24—The Christmas Recess begins.

Wednesday, December 25—Christmas Day.

THE
JOHNS HOPKINS
UNIVERSITY CIRCULAR

New Series, 1911, No. 6 JUNE, 1911 Whole Number, 23

GENERAL STATEMENTS AS TO THE COURSES OF INSTRUCTION

The Johns Hopkins University will begin its thirty-sixth year of instruction in October, 1911. The work will be carried on in these divisions:

The Graduate department, in which arrangements are made for the instruction of advanced students (men and women) in the higher branches of literature and science. The degrees of Doctor of Philosophy and Master of Arts are offered.

The Medical department, in which students (men and women), who have already received a liberal education, are received as candidates for the degree of Doctor of Medicine, and in which Doctors of Medicine may attend special courses.

The Undergraduate or Collegiate department, in which young men receive a liberal education leading to the degree of Bachelor of Arts.

Courses are also offered to (1) teachers in public and private schools wishing to pursue courses similar in character to the corresponding courses given in the collegiate department of this University; under a plan of co-operation with Goucher College, of Baltimore, women are admitted to these courses; (2) persons seeking opportunities for instruction during the summer session, with or without reference to an academic degree; men and women are admitted to such courses as they are found qualified to pursue with advantage.

An academic building, called McCoy Hall, in commemoration of its donor, contains the library and the class-rooms in languages, the historical and economic sciences, and philosophy. Laboratories are provided for Chemistry, Physics, Geology and Mineralogy, Zoology, Botany, Experimental Psychology, Anatomy, Physiology, and Pathology. Seminaries are organized in the Greek, Latin, Romance, German, English, Sanskrit, and Semitic languages, in Classical Archæology and Art, in Mathematics and Physics, and in History, Political Economy, Political Science, and Philosophy. There are various scientific associations and journal clubs which hold regular meetings.

The University Library contains one hundred and fifty-five thousand volumes, part of which are kept in the central reading-room, while the remainder of the books are distributed according to their subjects in the different laboratories and seminaries. The Library of the Peabody Institute contains one hundred and eighty-one thousand volumes. These books are selected with reference to the wants of scholars, and are accessible daily from nine in the morning until half-past ten in the evening. The proximity of Baltimore to Washington enables the students to visit the libraries, museums, and scientific foundations of the Capital.

The academic year extends from the first Tuesday in October to the middle of June. Instruction will begin October 3, 1911.

The charge for tuition is one hundred and fifty dollars per annum in the graduate and undergraduate departments, and two hundred dollars in the medical department.

The Register, containing statements as to the regulations and work of the University in general, and separate announcements of the Medical and Collegiate Courses, the College Courses for Teachers, and the Summer Session, will be sent on application.

FACULTIES OF PHILOSOPHY AND MEDICINE
1911-12

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THOMAS R. BROWN, M. D.,
Associate in Medicine.

GEORGE WALKER, M. D.,
Associate in Surgery.

RICHARD H. FOLLIS, M. D.,
Associate in Surgery.

FREDERICK H. BAETJER, M. D.,
Associate in Surgery, in charge of Actinography.

FRANK R. BLAKE, PH. D.,
Associate in Oriental Languages.

ELIZABETH HURDON, M. D.,
Associate in Gynecology.

LOUIS V. HAMMAN, M. D.,
Associate in Medicine.

CLARENCE B. FARRAR, M. D.,
Associate in Psychiatry.

ARTHUR D. HIRSCHFELDER, M. D.,
Associate in Medicine.

CURTIS F. BURNAM, M. D.,
Associate in Gynecology.

J. H. MASON KNOX, PH. D., M. D.,
Associate in Pediatrics.

JOHN C. FRENCH, PH. D.,
Associate in English.

AARON EMBER, PH. D.,
Associate in Semitic Languages.

RHEINART P. COWLES, PH. D.,
Associate in Biology.

EDWARD W. BERRY,
Associate in Paleobotany.

JOHN T. GERAGHTY, M. D.,
Associate in Genito-Urinary Surgery.

JOHN H. KING, M. D.,
Associate in Pathology.

ELIOT R. CLARK, M. D.,
Associate in Anatomy.

LEONARD G. ROWNTREE, M. D.,
Associate in Experimental Therapeutics.

HERBERT M. EVANS, M. D.,
Associate in Anatomy.

RALPH V. D. MAGOFFIN, PH. D.,
Associate in Greek and Roman History.

WILLIAM W. HOLLAND, PH. D.,
Associate in Chemistry.

MILTON C. WINTERNITZ, M. D.,
Associate in Pathology.
WILLIAM L. MOSS, M. D.,
Associate in Medicine.
ROBERT B. ROULSTON, PH. D.,
Associate in German.
FRANK J. SLADEN, M. D.,
Associate in Medicine.
S. EDWIN WHITEMAN,
Instructor in Drawing.
NATHAN E. B. IGLEHART, M. D.,
Instructor in Surgery.
MACTIER WARFIELD, M. D.,
Instructor in Laryngology and Rhinology.
ALFRED R. L. DOHME, PH. D.,
Instructor in Pharmacy.
J. HALL PLEASANTS, M. D.,
Instructor in Medicine.
RICHARD A. URQUHART, M. D.,
Instructor in Pediatrics.
JULIUS HOFMANN,
Assistant in German.
EDGAR R. STROBEL, M. D.,
Instructor in Dermatology.
W. RUSH DUNTON, JR., M. D.,
Instructor in Psychiatry.
JAMES J. MILLS, M. D.,
Instructor in Ophthalmology and Otology.
EDWARD M. SINGEWALD, M. D.,
Instructor in Neurology.
RONALD T. ABERCROMBIE, M. D.,
Director of the Gymnasium.
JOSEPH A. CHATARD, M. D.,
Instructor in Medicine.
JOHN A. LUETSCHER, M. D.,
Instructor in Medicine.
G. LANE TANEYHILL, JR., M. D.,
Instructor in Neurology.
JOHN McF. BERGLAND, M. D.,
Assistant in Obstetrics.
CHARLES W. LARNED, M. D.,
Instructor in Medicine.
HENRY LEE SMITH, M. D.,
Instructor in Medicine.
SAMUEL WOLMAN, M. D.,
Instructor in Medicine.
CHARLES A. ROUILLER, PH. D.,
Assistant in Chemistry.
HARRY S. GREENBAUM, M. D.,
Instructor in Medicine.
ALEXIUS M. FORSTER, M.D.,
Assistant in Medicine.
PAUL W. CLOUGH, M. D.,
Instructor in Medicine.
RHOADES FAYERWEATHER, M. D.,
Assistant in Orthopedic Surgery.
CLYDE G. GUTHRIE, M. D.,
Instrutcor in Medicine.
BERTRAM M. BERNHEIM, M. D.,
Assistant in Surgery.
CHARLES M. BYRNES, M. D.,
Instructor in Neurology.
J. STAIGE DAVIS, M. D.,
Instructor in Surgery.
CHARLES R. ESSICK, M. D.,
Instructor in Anatomy.
WILLIAM A. FISHER, M. D.,
Instructor in Surgery.
WILLIS D. GATCH, M. D.,
Assistant in Surgery.
EUGENE J. LEOPOLD, M. D.,
Assistant in Medicine.
DAVID I. MACHT, M. D.,
Assistant in Medicine.
CHARLES A. MYERS, PH. D.,
Instructor in English.
OMAR B. PANCOAST, M. D.,
Instructor in Surgery.
EDWARD H. RICHARDSON, M. D.,
Instructor in Gynecology.
THOMAS R. SPRUNT, M. D.,
Instructor in Pathology.
GEORGE S. BOND, M. D.,
Assistant in Medicine.
ALEXIUS MCGLANNAN, M. D.,
Voluntary Assistant in Surgery.
HOWARD E. ASHBURY, M. D.,
Assistant in Surgery.
CHARLES R. AUSTRIAN, M. D.,
Assistant in Medicine.
WALTER A. BAETJER, M. D.,
Assistant in Medicine.
WILLIAM E. BURGE, PH. D.,
Instructor in Physiology.
TRIGANT BURROW, M. D., PH. D.,
Assistant in Medicine.
SAMUEL J. CROWE, M. D.,
Assistant in Surgery.
WALTER E. DANDY, M. D.,
Assistant in Surgery.
FRANKLIN HAZLEHURST, M. D.,
Assistant in Laryngology and Rhinology.
FLORA POLLACK, M. D.,
Assistant in Gynecology.

J. T. Sample, M. D.,
Assistant in Medicine.
Martin F. Sloan, M. D.,
Assistant in Medicine.
Hedley V. Tweedie, M. D.,
Assistant in Ophthalmology and Otology.
Ernest I. Werber, Ph. D.,
Assistant in Anatomy.
Karl M. Wilson, M. D.,
Instructor in Obstetrics.
Clinton D. Deming, M. D.,
Assistant in Pathology.
Lloyd P. Shippen, M. D.,
Assistant in Hygiene and Bacteriology.
Frederick A. Blossom, A. B.,
Instructor in Romance Languages.
Solon A. Dodds, M. D.,
Assistant in Obstetrics.
Julia A. Gardner, Ph. D.,
Assistant in Paleontology.
Gustav Grünbaum,
Instructor in Romance Languages.
Eli K. Marshall, Jr., Ph. D.,
Assistant in Physiological Chemistry.
Charles F. Meyer, A. B.,
Assistant in Applied Electricity.
Chester N. Myers, Ph. D.,
Assistant in Chemistry.
Isaac R. Pels, M. D.,
Assistant in Dermatology.
Maxwell Ross, M. D.,
Assistant in Medicine.
Ralph H. Major, M. D.,
Assistant in Medicine.
Sidney R. Miller, M. D.,
Assistant in Medicine.
Helen Watson, M. D.,
Assistant in Medicine.

PROGRAMMES FOR 1911-12

The following courses in literature and science are offered for the academic year which begins October 3, 1911. They are open to properly qualified students according to conditions varying in each department.

MATHEMATICS

The advanced courses are so arranged that a qualified student gets in three years the more important points of view of the whole subject. The courses are elastic in character, subjects being introduced as they are needed. In general, the plan pursued is to foster independent inquiry on the part of the student. Once embarked on investigation, he uses all the apparatus of lectures and library with intelligent purpose. The seminary, which meets weekly, is primarily intended for the presentation of the results of the student's own thinking. Literature either intrinsically important or opportune is presented and discussed in the reading class, which also meets weekly.

ADVANCED COURSES

1. Mathematical Seminary.
One hour weekly. Professor Morley.

2. Reading Class.
One hour weekly. Professor Morley.

3. Higher Geometry.
Three hours weekly, first half-year. Professor Morley.

This is a general course in Geometry, covering in three years such matters as Projective Geometry, the Invariants of algebraic forms, Line Geometry, Conformal Geometry, Geometry on an algebraic curve or surface.

4. Theory of Functions.

Three hours weekly, second half-year. Professor Morley.

Algebraic Functions and their integrals; Elliptic, elliptic modular, and general automorphic functions; Theory of the potential.

5*. Dynamics.

Two hours weekly, first half-year (every other year). Professor Morley.

Special stress is laid on Rigid Dynamics.

6. Vector Analysis.

Two hours weekly, first half-year (every other year). Professor Morley.

7. Elementary Theory of Functions.

Two hours weekly, through the year. Dr. Cohen.

An introduction to the theories of functions of a real and a complex variable.

8. Differential Equations.

Two hours weekly, through the year. Dr. Cohen.

Including, in three years, Ordinary Differential Equations, their integral curves and singular points; Partial Differential Equations; Lie's theory.

9. Differential Geometry.

Two hours weekly, through the year. Dr. Cohen.

Including a study of Curves in space; Surfaces and lines upon them; Spherical representation; Applicability of surfaces.

10*. Calculus of Variations.

Two hours weekly, one half-year. Dr. Cohen.

11*. Theory of Numbers.

Two hours weekly, one half-year. Dr. Cohen.

12. Theory of Groups.

Two hours weekly. Associate Professor Coble.

Including Theory of Equations, Finite Geometries, Theory of algebraic forms.

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*Courses thus marked will *not* be given in 1911-12.

13. Theory of Correspondence.

Two hours weekly. Associate Professor Coble.

Including such matters as Cremona Transformations, general birational transformations.

14*. Theory of Probability.

Two hours weekly, one half-year. Associate Professor Coble.

Including the applications to statistics and the Theory of Errors.

UNDERGRADUATE COURSES

1. Solid Geometry; Algebra (special topics).

Three hours weekly, first half-year. Professor Hulburt.

Plane Analytic Geometry.

Three hours weekly, second half-year. Professor Hulburt.

Conference.

Two hours weekly, through the year.

2. Differential and Integral Calculus.

Three hours weekly, through the year. Professor Hulburt.

Conference.

Two hours weekly, through the year.

3. Differential Equations; Calculus (special topics).

Three hours weekly, through the year. Dr. Cohen.

Conference.

Two hours weekly, through the year.

4. Projective Geometry.

Three hours weekly, first half-year. Associate Professor Coble.

Descriptive Geometry.

Three hours weekly, second half-year. Associate Professor Coble.

Conference.

Two hours weekly, through the year.

In connection with the three hours' class-room instruction, the instructor in each course meets his students weekly in a two-hour session, for the purpose of supplementary explanation and application of the principles taught in the class-room. This is the part of each course designated as "Conference." It is not intended thus to increase the amount of work required of the student, but rather to aid him in the understanding and preparation of the work of the class.

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*Courses thus marked will *not* be given in 1911-12.

PHYSICS AND ASTRONOMY

The Physical Laboratory offers facilities in the form of apparatus, libraries, and machine shops to students who wish to pursue experimental investigations in any field of Physics. If the results of these are to be offered as a dissertation for the degree of Doctor of Philosophy, the work must be done under the general direction of the Director of the Laboratory, or of one of the other professors. For students carrying on experimental researches the laboratory is open daily, except Saturdays, from 9 a. m. until 5 p. m., and on Saturdays from 9 a. m. until 1 p. m.

Regular courses of instruction in both Physics and Astronomy are given in the form of lectures and laboratory exercises. They may be classified as Advanced and Elementary. The former are designed primarily for graduate students; the latter, for undergraduates.

ADVANCED COURSES

Seminary and Journal Meetings

All advanced students meet with the instructors twice each week,—once in the Physical Seminary, and once for the discussion of the current Physical Journals.

During the year 1911-12 the questions to be considered in the Seminary will refer to the history of the development of Electrical Theories.

Lectures

1. General Physics. Professor AMES.
Four hours weekly, through the year.

This is a course of lectures in Mathematical Physics continuing for three years and including the subjects of Theoretical Mechanics, Elasticity, Hydrodynamics, Sound, Thermodynamics, Heat Conduction, Electricity and Magnetism, and Light. During the year 1911-12 the lectures will be on Electricity.

2. Selected Problems in Advanced Physical Optics. Professor Wood.
Three hours weekly, through the year.

3. Applied Electricity. Professor Whitehead.
Two hours weekly, through the year.

4. Applied Electricity (*Advanced Course*). Professor Whitehead.
Two hours weekly, through the year.

5. Celestial Mechanics. Associate Professor Anderson.
Two hours weekly, through the year.

6*. General Astronomy. Associate Professor Anderson.
Three hours weekly, through the year. (*See 6 below.*)

7. Theory of Optical Instruments and Spectroscopy. Associate Professor Pfund.
Two hours weekly, first half-year.

Laboratory Courses

1. Special Exercises in Physics in preparation for independent research, under the direction of Professors Ames, Wood, Bliss, and Whitehead, and Associate Professor Pfund.

2. Applied Electricity. Professor Whitehead.

3. Use of Astronomical and Astrophysical Instruments. Associate Professor Anderson.

For students following these courses the laboratory is open daily, except Saturdays, from 9 a. m. to 5 p. m.; the observatory is open every favorable night.

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*This course may be chosen as an elective by undergraduates.

ELEMENTARY COURSES

1. Elements of Physics.

Three hours weekly, through the year. Professor Ames and Associate Professor Pfund.

This course of lectures is based upon Ames's "Text-book of General Physics," and is intended to include the field of Physics in an elementary manner. It presupposes a knowledge of the elements of plane trigonometry. Course 4 of laboratory work (see below) is arranged to accompany these lectures.

2 *and* 3. The four following series of lectures are given each year and are combined, together with the corresponding laboratory work (see Physics 5 below), into two courses known as Physics 2 and Physics 3. The mode of combination varies from year to year according to the needs of the students applying.

(*a*) Elementary Theoretical Mechanics.

Three hours weekly, twelve to fifteen weeks. Professor Bliss.

This course is designed to serve as an introduction to Mathematical Physics, and students following it must have a knowledge of the elements of the Calculus.

(*b*) Elementary Electricity and Magnetism.

Three hours weekly, fifteen to twenty weeks. Professor Bliss.

This is an introduction to the mathematical theory of the electrostatic and magnetic fields and electric currents. Course "*a*" or an equivalent preparation is assumed.

(*c*) Elementary Thermodynamics.

Three hours weekly, twelve to fifteen weeks. Professor Bliss.

The object of this course is to familiarize the student with the fundamental ideas of Thermodynamics, such as Temperature, Entropy, and Reversibility. By way of illustration applications are made to very elementary problems in heat engines, solutions, and electrochemistry, so far as time will permit. Course "*a*" or an equivalent preparation is assumed.

(*d*) Physical Optics.

Three hours weekly, fifteen weeks. Associate Professor Pfund.

This course is a moderately advanced treatment of the subject of optics, special emphasis being laid on interference, diffraction, polarization, and their application to modern instruments of high efficiency.

4. Laboratory Work for Beginners.

Two afternoons weekly, through the year. Professor Bliss and Assistants.

In this elementary work the students are taught methods of exact observation and measurement, and, so far as possible, they study the fundamental phenomena of Physics in a quantitative manner. The exercises given in Ames and Bliss's "Manual of Experiments in Physics" serve as a basis for this work.

5. Laboratory Work, in connection with Physics 2 and 3.

To complete each of these courses the student is required to pursue two of the four following groups, making together two afternoons a week for the year.

(*a*) Mechanics.

Two afternoons weekly, twelve weeks. Professor Bliss.

In this course the students are taught methods of exact measurement of time, length, and mass, and methods for the determination of the various mechanical and elastic constants.

(*b*) Electricity and Magnetism.

Two afternoons weekly, twenty weeks. Professor Bliss.

Special attention is given to instruction in modern methods of measurement of various electrical quantities and in the use of improved apparatus. Those qualified and desiring such instruction may substitute work with dynamos, motors, and transformers for part of the course.

(*c*) Heat.

Two afternoons weekly, one half-year. Professor Bliss.

This includes methods of measuring temperature, including the use of thermocouples, resistance thermometers and pyrometers, together with other exercises illustrating lecture course "*c*" above.

(*d*) Optics.

Two afternoons weekly, one half-year. Associate Professor Pfund.

The students are given a thorough working knowledge of experiments dealing with fundamental principles, as well as of experiments involving the use of modern types of optical instruments, such as the plane and concave grating, Michelson and Fabry and Perot interferometers, polarimeters, etc.

6. General Astronomy.

Three hours weekly, through the year. Associate Professor Anderson.

The theory of astronomical instruments and observations will be outlined (based on Young's "General Astronomy"), a general treatment of spherical astronomy and the elements of celestial mechanics will be given, together with as much physical astronomy as time will permit. The students will spend one evening per week throughout the year in the observatory, where instruction in the actual use of instruments will be given.

7. Elements of Applied Electricity.

Two hours of lectures and five hours in laboratory weekly, through the year. Professor WHITEHEAD and Assistant.

This course is designed to meet the needs of graduate students in other departments than Physics, who wish to become familiar with the simple principles of Applied Electricity. It is not open to undergraduate students.

CHEMISTRY

The Chemical Laboratory is equipped with apparatus for nearly all kinds of scientific chemical investigations, and it is the policy of the University to provide every needed facility for promising investigations of a special or unusual character.

The laboratory is open daily, except Saturdays, from 9 a. m. until 5 p. m., and on Saturdays from 9 a. m. until 1 p. m.

COURSES FOR GRADUATES

I. *Journal Meetings*

These meetings are held at 9 a. m. on Saturdays, throughout the year, and are under the direction of Professor REMSEN. Toward the end of the academic year, those who have been engaged in research give an account of the progress of their investigations.

II. *Systematic Inorganic Chemistry*

This course consists of two lectures and one conference weekly through one year. It is given by Associate Professor LOVELACE, and is adapted to the needs of students who have already had one year of chemistry.

III. *Systematic Organic Chemistry*

This course, which is given by Associate Professor ACREE, consists of two lectures and one conference weekly through the year. Like Course II, it is adapted to the needs of those who have had one year of chemistry.

Usually students will take Courses II and III concurrently during their first year of graduate work.

IV. *Physical Chemistry*

The course in physical chemistry consists of three lectures weekly throughout the year by Professor JONES.

V. *Advanced Chemistry*

A course of two lectures weekly through two years, upon selected topics in the various branches of the science, will be given for the benefit of those students who have already completed Courses II and III. It may be taken, during the first year, concurrently with Course IV. The instruction is given principally by the resident members of the teaching staff, but from time to time teachers from elsewhere, who have become eminent in special lines of research, will be invited to participate.

VI. *Laboratory Courses*

1. Inorganic reactions and qualitative analysis, under the direction of Associate Professor LOVELACE.
2. Organic reactions and preparations, under the direction of Associate Professor ACREE.
3. Quantitative methods, under the direction of Professor MORSE.
4. Physical-chemical methods, under the direction of Professor JONES.

Examinations

Written examinations are given upon all lecture and laboratory courses, except I, and students who are candidates for the degree of Doctor of Philosophy are required to give evidence of adequate proficiency in each course before undertaking more advanced work. Those who show themselves unable to pass the required examinations in a creditable manner are discouraged from trying to take the doctor's degree.

Dissertations

Having completed the routine work of the various laboratories and having passed with credit the required examinations, the student is assigned by the director of the laboratory to one of the staff, who proposes to him a problem for investigation which may be made the basis of the doctor's dissertation,* and who thenceforth directs his work in the laboratory. It sometimes happens that the student has good reason for preferring some particular line of research, and this course is allowed if the circumstances permit.

Special Students

For those who do not look forward to the degree of Doctor of Philosophy, the rules are less rigid. Any person admitted to the University as a special student is permitted to take any of the lecture or laboratory courses for which he is qualified by previous training.

UNDERGRADUATE COURSES

1. Introduction to General Chemistry.

(*a*) *Lectures and recitations, three hours weekly, through the year.* Associate Professor Gilpin.

(*b*) *Laboratory work, six hours weekly, through the year.* Associate Professor Gilpin and assistants.

No previous knowledge of chemistry is required. The class-room work is based on Remsen's Chemistry (Briefer Course) and covers the field of inorganic chemistry, as far as possible. The last twelve class-room exercises give a brief sketch of organic chemistry, particularly for the benefit of those students whose study of chemistry is confined to the first-year course. In the laboratory the student repeats the experiments performed in the class-room, and, in addition, has some practice in simple quantitative analysis and in making inorganic preparations. Each student is required to keep a notebook of his work.

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*The length of time required for the completion of the dissertation work cannot be definitely stated, but, as a rule, from one year to one and one-half years should be allowed for it in the plans of the candidate.

2. Advanced Inorganic Chemistry and Qualitative Analysis.

(*a*) *Lectures and recitations, three hours weekly, through the year.* Associate Professor LOVELACE. [Same as Course II for Graduates.]

(*b*) *Laboratory work, six hours weekly, through the year.* Associate Professor LOVELACE and assistants.

The class-room work in the second year is intended to give a more thorough knowledge of chemical and physical-chemical laws, of the properties of chemical compounds, and of the principles of qualitative analysis. The laboratory work is in qualitative analysis and inorganic preparations.

3. Chemistry of the Compounds of Carbon.

(*a*) *Lectures and recitations, three hours weekly, through the year.* Associate Professor ACREE. [Same as Course III for Graduates.]

(*b*) *Laboratory work, six hours weekly, through the year.* Associate Professor ACREE and assistants.

The class-room work of the third year is devoted to the study of Organic Chemistry. The laboratory work is the making of organic preparations, but also includes practice in the analytic detection of organic substances and in analytical methods of value to those intending to study medicine. The text-book used is Remsen's Organic Chemistry.

This course is open only to those who have completed Courses 1 and 2.

4. Laboratory Work only.

Laboratory work, six hours weekly, through the year. Associate Professor LOVELACE and assistants.

The laboratory work comprises advanced qualitative analysis, including technical methods, difficult inorganic preparations, and assaying. Those contemplating graduate work in chemistry will devote half of the year to the study of Volhard and Zimmermann's "Experiments in General Chemistry;" others may substitute quantitative analysis.

Students of the fifth group whose principal subject is chemistry are required to pursue the courses in chemistry during the first, second, and third years. Those who look forward to the study of medicine are advised to follow the courses in the first and second years, and to take the course in the compounds of carbon in their last year of residence.

The fourth-year course is intended for those students only who have satisfactorily absolved the courses of the three preceding years. It will be a help to those who intend to follow graduate work in chemistry, and also to those who desire to make practical use of their knowledge of chemistry after receiving the bachelor's degree.

GEOLOGY

The Geological Laboratory offers facilities in the form of collections, instruments, and libraries to students wishing to pursue special researches in geology and its allied subjects—paleontology, petrography, mineralogy, etc. Such researches may be carried on independently, or with the co-operation of the members of the geological staff; but, if the student intends to become a candidate for a degree, the work must be conducted under the general direction of the head of the department or of his associates.

The laboratory, collections, and libraries are open to the advanced students daily, from 9 a. m. until 5 p. m.

Regular courses of instruction in geology are given in the form of lectures, laboratory exercises, and field work. The advanced courses are adapted to the requirements of students of maturity, the general courses to students desiring an elementary or cultural training in the subject. The former are designed primarily for graduate students in geology; the latter for undergraduates or for students from other departments wishing a more general knowledge of the subject.

ADVANCED COURSES

Seminary and Journal Meetings

The advanced students meet with the instructors once each week for the discussion of current publications dealing with geology. During the latter half of the year papers are presented giving the results of researches conducted in the laboratory, or summarizing the present state of knowledge regarding geological questions of general interest.

Lectures

1. Historical Geology. Professor Clark.
   Two hours weekly, through the year.
2. Sytematic Paleontology. Professor Clark.
   Two hours weekly, through the year.
3. Economic Geology. Professor Clark.
   Two hours weekly, through the year.
4. Geological Physics. Professor Reid.
   Two hours weekly, through the year.
5. Exploratory Surveying. Professor Reid.
   Two hours weekly, through the year.
6. Advanced Mineralogy. Professor Mathews.
   Three hours weekly, through the year.
7. Petrography. Professor Mathews.
   Three hours weekly, through the year.
8. Paleobotany. Mr. E. W. Berry.
   Two hours weekly, first half-year.

Laboratory Courses

1. Paleontology. Professor Clark and Mr. Berry.
   Weekly, through the year.
2. Petrography. Professor Mathews.
   Weekly, through the year.
3. Advanced Mineralogy. Professor Mathews.
   Weekly, through the year.
4. Geological Field Methods. Professor Mathews.
   Weekly, during the fall and spring.

Laboratory studies in advanced courses are carried on daily from 9 a. m. until 5 p. m. under the general direction of the professors in charge, who are accessible at all times. An afternoon is devoted especially to each course, when the subject-matter is more fully developed by quizzes, demonstrations, etc.

UNDERGRADUATE COURSES

1. Elements of Geology.

Three lectures or recitations and three hours of laboratory work weekly, through the year. Professor SWARTZ.

This course is open to all students. It is designed to give a general view of the subject of Geology, and may profitably be pursued by those who wish to have some knowledge of the chief events of the earth's history. It includes an account of the origin of the features of the surface of the earth, a discussion of the phenomena of earthquakes, volcanoes, mountain-making, and an outline of the past history of the earth.

Materials illustrative of the lectures are studied in the laboratory. Emphasis is placed upon the observation of geological phenomena in nature, the vicinity of Baltimore and the State of Maryland presenting features of unusual interest for such study. Frequent excursions are made to neighboring points where the principles of the science are studied in the field, while a longer trip is made in the spring to places of special interest for geological study. The longer excursion may be omitted by students who desire to do so, the field trips in the vicinity of Baltimore only being taken. This course is illustrated by maps, lantern views, and the rich collections of the University.

2. Mineralogy and Elementary Petrography.

PART I.—*Two lectures and four hours of laboratory work weekly, through the year.* Professor SWARTZ.

This course includes the study of crystallography, a discussion of the more important minerals, and a brief consideration of the origin and characteristics of the chief types of rocks. Numerous excursions are made to points of interest in the vicinity of Baltimore, which is unusually rich in the variety of its rocks and minerals.

Emphasis is laid upon laboratory work, which includes the study of crystal models, the identification of minerals by means of the blowpipe and by inspection, and the examination of rocks in the laboratory and in the field. A knowledge of chemistry is required for the pursuit of this course.

PART II.—*One lecture and two hours of laboratory work weekly, through the year.* Professor SWARTZ.

Part II is open to students who are pursuing Part I and who wish a more thorough knowledge of crystallography and mineralogy than is afforded by that course. It offers a more advanced discussion of those subjects, while a larger number of the more important minerals are studied in the laboratory.

3. Applied Geology.

Three hours weekly, through the year, with laboratory work. Professor Mathews.

This course is devoted to a discussion of the non-metallic minerals and rocks which are worked commercially. The knowledge of geology and mineralogy gained in the preceding courses is applied to the recognition of useful minerals, their mode of occurrence, properties, values, and uses. The main sources of coal, oil, clay, building-stones, abrasives, gems, etc., the way they are won, and their economic importance, are treated with more or less detail. The aim of the course is to supply such information regarding mineral resources as an educated man should possess. The treatment of the technical questions of metallurgy or mining must be sought in technical schools.

State Scientific Bureaus connected with the Department.—Two scientific bureaus, established by the legislature and maintained at the expense of the State, are carried on in connection with the geological department. They are the Maryland Geological and Economic Survey and the Maryland State Weather Service. Professor Clark is the director of both these organizations, which are concerned with a study of the geology and physical features of the State of Maryland. The work is carried on under his direction mainly by the instructors and students of the department. A State Forestry Bureau, of which Professor Clark is Executive Officer, is also located in one of the buildings of the geological department.

Advantages afforded by Proximity to Washington.—Washington is less than an hour distant from Baltimore. This renders it possible to take frequent advantage of the facilities afforded by that city, where the officers of the various scientific bureaus and societies give the students of the university every opportunity to examine the rich collections and libraries under their control.

Field Work.—The area of the State of Maryland includes, notwithstanding its comparatively small size, a remarkable sequence of geological formations. The ancient rocks of the earth's crust, as well as those still in the process of deposition, are found, while between these wide limits there is hardly a geological epoch which is not represented. As a result most excellent facilities are afforded for a study of the various geological horizons. Excursions to points of interest are made during the autumn and spring months.

ZOOLOGY AND BOTANY

The Biological Laboratory furnishes adequate rooms, with the usual apparatus, for carrying on research in animal and plant morphology, embryology, and experimental zoology. For special investigations unusual apparatus will be obtained.

It is planned that, before receiving the degree of Doctor of Philosophy, each student shall have the opportunity to study marine and terrestrial life in some tropical region. In the spring and summer of 1910 this work was carried on in Jamaica, West Indies.

A collection of living plants in the botanical garden and conservatory, a physiological laboratory in the latter, and propagating grounds nearby are available for morphological and experimental study. A collection of carefully "fixed" and preserved alcoholic material of several hundred species of plants is available for histological and developmental study. The herbaria of the laboratory include the Schimper collection of European seed plants, the Field Club collection of local plants, the Fitzgerald collection of mosses, and smaller collections of fungi, marine algae, and Jamaican plants.

The library in the laboratory is supplemented by the main library of the university and other libraries in the city, including the excellent botanical library of John Donnell Smith, whose courtesy has always made his library and herbarium available for advanced students.

Prompt publication of abstracts of results is provided for in the University Circular. From time to time the results of extensive investigations in zoology are published by the University Press in a series of illustrated quarto monographs. The Adam T. Bruce Fellowship is awarded to men capable of carrying on research in biology. One of the graduate students in zoology may be appointed each year to occupy the University table at the marine laboratory of the U. S. Fisheries Bureau, at Woods Holl, Mass.

The laboratories are open from 9 a. m. to 5 p. m., and for necessary research in the evenings, but only by special permission.

ADVANCED COURSES

I. *Zoology*

The advanced work in zoology is directed toward the development of investigators, and the student will receive such assistance and training toward that end as his individual needs seem to require. The set courses of the department are perhaps the less important part of that work. The courses in Zoology include: (1) Introductory and General Courses; (2) The study of the structure, morphology, classification and distribution of animals; (3) Study of the activities and functions of the developed organisms; (4) Study of the production of the structures and functions of the organism, in the history of the individual, and in the history of the race. The first two lines of work are provided in the Undergraduate Courses, and in many cases graduate students will find it well to follow certain of these. The third and fourth lines are provided for in the Advanced Courses. Any of the lines of work may lead directly to research, and such research will be carried on under the immediate oversight of the member of the staff in whose special field the problem falls. The later year or years of the candidate for the doctorate should be devoted to investigation, with little distraction by attendance on set courses. As a rule the student presents before the members of the department at some time during his work a discussion of the subject with which his investigations deal, in the form of a number of lectures.

The Advanced Courses are elastic, subjects being dealt with that appear especially useful to the students taking part; different students may devote themselves primarily to diverse parts of the subject. In the latter part of each course as a rule some special subject or problem will be taken up by each student, leading directly to research.

Journal Club.—All graduate students take part with the instructors in a weekly discussion of the current literature.

Seminary.—Professors JENNINGS and ANDREWS. The instructors and advanced students meet once a week in the evening for the discussion of some of the fundamental problems of biology. Usually some book of philosophical trend is read and discussed. In recent years the seminary has taken up thus Driesch's Science and Philosophy of the Organism; Lloyd Morgan's The Interpretation of Nature; v. Uexkuell's Umwelt und Innenwelt der Tiere. In 1911-1912 it is proposed to take up Bergson's Creative Evolution.

Production of the Structures and Functions of Organisms.—Professor JENNINGS. Three lectures or conferences and two laboratory periods weekly from the beginning of the session till February 1.

This subject will be dealt with in two courses, to be given in alternate years, as follows:

(*a*) Genetics. The production of structures and functions in the history of the race. The changes in organisms as they pass from generation to generation; the experimental study of reproduction, heredity, variation and evolution. This course will be given in 1911-1912.

(*b*) Development of the Individual. The experimental and analytical study of the production of structures and functions in the development of the individual; "experimental embryology," regeneration and regulation. This course will not be given in 1911-1912.

General Physiology of Animals; Functions and Activities of Developed Organisms.—Associate Professor MAST. Three lectures or conferences and two laboratory periods weekly through the year.

This course deals with the chemical and physical properties of organisms, the relation between animals and their environment, and fundamental processes which occur in organisms: metabolism, growth, movement, response to stimuli, behavior.

The work will be confined largely to a general and comparative study of the life processes in the Invertebrates. Plants and the Vertebrates will be considered only in a general way, since they are fully dealt with in the department of Botany or in the department of Physiology of the Medical School. The second half-year will probably be devoted mainly to Animal Behavior. Problems for investigation may be taken up in this or in other lines.

The attention of students of zoology should be called to the courses on the behavior of higher animals, given in the psychological department by Professor WATSON.

II. *Botany*

1. Journal Club and Seminary.

a. The Journal Club meets weekly through the year, in conjunction with the Zoological Journal Club.

b. The Botanical Seminary meets twice weekly, from December 1 to May 1. Professor JOHNSON.

2. Lectures and Laboratory Work.

I. Reproduction and Phylogeny in Plants. Professor Johnson.

a. *Three lectures weekly through the year.*

b. *Laboratory work associated with the lectures, twice weekly through the year.*

c. *Definite problems in field work assigned for study in the autumn and spring.*

II. The Histology and Ecological Anatomy of Plants. Professor Johnson.

a. *Two lectures or conferences weekly from January* 1 *to April* 1.

b. *Laboratory work twice weekly from January* 1 *to April* 1.

III. The History of Botany. Professor Johnson.

Two lectures weekly from October 1 *to December* 20.

The following themes will be discussed in alternate years: The Theory of Sex in Plants; The Cell Theory.

IV. Plant Physiology. Professor Livingston.

Lectures and laboratory work on the chief plant processes. Green's Plant Physiology will be read. A good general knowledge of physics and chemistry is highly desirable.

a. *Three lectures or conferences weekly till February* 1.

b. *Six hours of laboratory work weekly till February* 1.

V. Physiology of the Cell. Professor Livingston.

An advanced course on protoplasmic processes, such as protoplasmic movement, the chemistry of nutrition and respiration, enzymes, etc.

a. *Two lectures weekly from February* 1 *to June* 1.

b. *Six hours of laboratory work weekly from February* 1 *to June* 1, *with reading of original articles.*

The laboratory work will aim to give the student illustrative material bearing on the subject as well as to bring him into contact with problems and methods of research, and will require the reading of selected original literature, much of it in French or German. Open to students who have had Course IV or its equivalent, or a similar course in animal physiology.

VI. Problems in Plant Physiology. Professor Livingston.

a. *Two lectures weekly through the year.*

b. *Six hours of laboratory work and a one-hour conference weekly throughout the year.*

This course plans to give perspective and to prepare the student for profitable research in either pure or applied physiology. Each student will carry on experimentation upon and will work up the literature of restricted phases of plant activity, reporting on both literature and experiments. A considerable knowledge of the principles and methods of physics and chemistry is prerequisite.

UNDERGRADUATE COURSES

The collegiate courses in zoology and botany are known as Biology 1, Biology 2, Biology 3, and the Natural History Course.

1. General Biology and Embryology.

Six hours laboratory work and three lectures or other exercises weekly, through the year. Professor ANDREWS and assistants.

This introductory course is open to all students and may be taken without previous training in chemistry or physics. It may be taken profitably by students interested in political economy, history, psychology, or ethics; it will be found useful to those looking forward to the ministry; and it is required of all who are to enter the medical school.

(*a*) General Biology. [*Till March* 15.]

In the laboratory each student studies with the microscope, or dissects, selected animals and plants, from the more simple such as amoeba and yeast, to the more complex such as the fern and frog. In the lectures some of the fundamental facts of Biology are emphasized.

(*b*) Embryology. [*After March* 15.]

Each student studies the cleavage of the living frog's egg and the formation and transformation of the tadpole. Subsequently he studies the hen's egg and the formation of organs in the embryo chick, learning to make his own serial sections, etc.

2. Comparative Anatomy and Bacteriology.

Six hours of laboratory work and three lectures or other exercises weekly, through the year. Dr. COWLES.

This course continues the training of Biology 1 in limited fields, and is recommended to those who expect to study medicine, or to specialize in any department of Biology.

(*a*) Comparative Anatomy of Vertebrates. [*Till March* 15.]

The student dissects the skate, shark, codfish, necturus, turtle, alligator, pigeon, and dog. The lectures emphasize the principles of animal morphology.

(*b*) Bacteriology. [*After March* 15.]

The student learns the methods of handling, cultivating, and studying non-pathogenic bacteria. The practical work gives valuable training in careful laboratory methods. The lectures treat of bacteria from a biological point of view, as very important agents in natural processes.

3. Zoology and Botany.

Six hours of laboratory work and three lectures or other exercises weekly, through the year.

(*a*) Zoology. [First half-year.]

Professor ANDREWS and Dr. COWLES.

A comparative study of the chief groups of non-vertebrate animals. This may be made a whole course when botany is not needed.

(*b*) Botany. [Second half-year.]

Professors JOHNSON and LIVINGSTON.

The Structure of Root, Stem, Leaf, Flower, and Fruit. [*January to May.*]

An Introduction to Plant Physiology, with selected laboratory experiments. [*After May* 1.]

This is a course for beginners, giving a general survey of the nature and activities of plants, the out-door work serving to give students some familiarity with native plants in the field. This may be made a full course by those desiring it for general culture, or as a preparation for graduate work in botany or for work in forestry.

Elementary Zoology (Natural History.)

Nine hours weekly, second half-year. Associate Professor GRAVE.

This course is intended for those having no training in these subjects and is chiefly a laboratory course. It is required of students in Groups I, II, III.

PHYSIOLOGY

Facilities are offered in the Physiological Laboratory for special students, graduates in medicine and others, who are interested in special lines of investigation, and also for those who wish to follow courses leading to the degree of Doctor of Philosophy in Physiology or allied subjects.

Regular courses of instruction are given as follows:

1. Journal Club. Professor Howell.

Weekly, through the year.

2. Physiology of the Animal Body. Professor Howell, Associate Professors Hooker and Snyder.

Lectures, three hours weekly, through the year; laboratory, twelve hours weekly, first trimester.

[The laboratory course may be repeated in the third trimester.]

3. Advanced Laboratory Work. Professor Howell. This work is done individually.

GREEK

GREEK SEMINARY

Professor Gildersleeve will conduct the Greek Seminary, the plan of which is based on the continuous study of some leading author or some special department of literature.

The Seminary consists of the Director, Fellows, and Scholars, and such advanced students as shall satisfy the Director of their fitness for an active participation in the work by an essay, a critical exercise, or some similar test of attainments and capacity. All graduate students, however, may have the privilege of attending the course.

During the next academic year the study of the *Greek Historians* will constitute the chief occupation of the members and Thukydides will be the centre of the work. There will be two meetings a week during the entire session. Especial attention will be paid to the development of historical style and method.

In connection with the Seminary there will be held a series of conferences on *Greek Historiography.*

The students should possess Herodotos, Thukydides, Xenophon, Polybios, Dionysios of Halikarnassos (rhetorical works), and Schäfer's Quellenkunde der griechishen Geschichte.

ADVANCED AND GRADUATE COURSES

1. Professor Gildersleeve will also conduct a course of *Practical Exercises in Greek,* consisting chiefly in extemporaneous translation from Greek into English and English into Greek, two meetings a week from the beginning of the session to the first of January.

2. Notice of other courses is reserved.

Associate Professor Miller will conduct the following courses:

1. Readings twice a week in Thukydides during the first half of the year.

2. Lectures and Practical Exercises in Greek Palæography, twice weekly during the latter half of the year.

3. Exercises in advanced Greek composition for the benefit of candidates for the degree of Doctor of Philosophy.

Dr. A. M. Soho will conduct a course throughout the year in Modern Greek.

The object is to impart a practical knowledge of the language by reading standard authors and by conversation, upon which especial emphasis will be laid. During the second half-year a portion of the time will be devoted to the consideration of the phonetic and morphological laws which the modern language followed through its development from the classical Greek.

UNDERGRADUATE COURSES

1. Xenophon, *Memorabilia* (selections).
   Plato, *Apology*.
   Herodotus (selections).

Three hours weekly, first year. **Associate Professor Miller.**

Prose Composition.

One hour weekly, first year. **Associate Professor Miller.**

Private Reading: Plato, *Crito;* Homer, *Odyssey* (two books).

2. Andocides I; Lysias (selections).
   Euripides (one play).
   Prose Composition.

Three hours weekly, second year. **Associate Professor Spieker.**

Private Reading: Xenophon, *Hellenica* (book 1); Euripides (one play).

3. Plato, *Protagoras*.
   Lyric Poets.
   Sophocles (one play).
   Survey of Greek Literature.
   Prose Composition.

Three hours weekly, third year. **Associate Professor Spieker.**

Private Reading: Elegiac and Iambic Poets; Aeschylus (one play).

4. Thucydides (book VII).
   Aristophanes, *Frogs*.

Two hours weekly, fourth year. **Associate Professor Spieker.**

Greek Life: lectures and conferences.

One hour weekly, fourth year. **Associate Professor Robinson.**

Private Reading: Demosthenes (select orations); Aristophanes, *Clouds*.

Associate Professor Spieker offers, for beginners in Greek, a course of three hours weekly throughout the year. This course is intended primarily for the benefit of such graduate students of language as may feel the need of a knowledge of Greek in the prosecution of their work; but undergraduate students who have the ministry in view, and who have not had any previous training in Greek, may also be admitted. The class will be advanced as rapidly as is consistent with thoroughness of work.

LATIN

The most important organ of training is the Latin Seminary which meets twice a week throughout the year, under the direction of Professor Smith. It consists of the director, fellows, scholars, and such advanced students as shall give satisfactory proof of their ability and training. Any graduate student is at liberty to attend the Seminary exercises, but each regular member is required to take his turn in the work. Each year some author or group of authors in a given department of literature is made the centre of study. The subjects treated during the last three years are as follows:

1908-1909. The Roman Historians, especially Livy and Tacitus.
1909-1910. The Roman Epic, especially Vergil.
1910-1911. The Roman Drama, especially Plautus and Terence.

In addition to the regular work of the Seminary, courses of lectures are given every year by the director, and from time to time by other qualified persons.

During the academic year 1911-1912 the Seminary will be given to the Roman Satire, and the centre of this work will be Horace and Juvenal.

Students are requested to provide themselves with texts of Horace (ed. Wickham, Oxford Classical Text), Juvenal and Persius (ed. Owen, Oxford Classical Text), Petronius (ed. Buecheler, Berlin, Weidmann), and Apuleius. *Metamorphoses* (ed. Helm, Teubner Text).

ADVANCED AND GRADUATE COURSES

1.* Professor Smith will lecture on the Roman Satire once a week throughout the year.

2. During the first half-year he will hold a series of weekly conferences on the *Cena Trimalchionis* of Petronius.

3. During the second half-year he will lecture once a week on the *Metamorphoses* of Apuleius and will comment on selected portions of the text, more especially, the Story of Cupid and Psyche.

4.* Professor Wilson will lecture once a week throughout the year on Latin Epigraphy. The course will be accompanied by a series of practical exercises in the interpretation of inscriptions from original stones and from published texts.

5. The advanced students will meet once a week during the year for the rapid reading of Horace, Persius and Juvenal.

For Dr. Magoffin's courses in Greek and Roman History see the programme in History.

Notice of other courses is reserved.

UNDERGRADUATE COURSES

1. Livy (selections); Terence (one play): Vergil, *Bucolics;* Catullus (selections).

Three hours weekly, through the year. Professor MUSTARD.

Private Reading: Cicero, *Cato Maior;* Vergil, *Aeneid* (book VIII).

Prose Composition.

Weekly, through the year. Professor MUSTARD.

2. Tacitus, *Annals* (selections); Pliny's *Letters* (selections); Horace, *Odes* and *Epodes.*

Three hours weekly, through the year. Professor MUSTARD.

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*This course will be given at an afternoon hour for the benefit of those who cannot attend in the forenoon.

Private Reading: Tacitus, *Germania;* Horace, *Satires* and *Epistles* (selections).

3. Lucretius (selections); Vergil, *Georgics;* Horace, *Ars Poetica.*

Two hours weekly, through the year. Professor MUSTARD.

Private Reading: Cicero, *First Tusculan;* Quintilian (book x).

Roman Literature (with reading of selected passages).

Weekly, through the year. Professor SMITH.

4. Juvenal (selections); Petronius (selections); Apuleius (selections).

Two hours weekly, through the year. Professor WILSON.

Private Reading: Martial (selections); Seneca's *Letters* (selections); Roman Elegy (selections).

Roman Life: lectures and conferences.

Weekly, through the year. Professor WILSON.

5. Advanced Latin Composition.

Weekly, through the year. Professor MUSTARD.

NOTE.—Courses 2, 3, and 4 may be taken only by those who have pursued the courses preceding them.

Roman Literature (Course 3) and Roman Life (Course 4), each one hour weekly, are open to all students, and taken together are counted as half a course.

CLASSICAL ARCHAEOLOGY AND ART

The work in Classical Archæology and Art is carried on by means of a Seminary, various courses of lectures, conferences with individual students and practical exercises in the museums. The archæological material in the possession of the university includes good collections of Greek and Roman inscriptions, marbles, bronzes, vases and other terracottas, coins, gems, etc., which not only serve the purpose of illustration, but also form the basis of original investigation. These are supplemented by squeezes, photographs, and lantern slides, as well as by the casts belonging to the university and to the Peabody Institute. The new Walters Gallery, which is not far from the university, contains a very valuable collection of Greek and Roman antiquities.

SEMINARY AND ADVANCED COURSES

The subjects treated in the Seminary, or presented in lectures, vary from year to year, so that in three or four years of continuous residence students are brought into contact with the most important of the ancient authors and with the principal fields of archæological research. These subjects include Greek and Roman architecture, epigraphy, private life, topography, sculpture, painting, ceramics, coinage, gems, bronzes, and the Etruscan and Mycenæan civilizations. The following courses are offered for the year 1911-12:

1. Archæological Seminary. Selected topics in the Latin Inscriptions. Professor WILSON.
Two hours weekly, first half-year.

2. Archæological Seminary. Selected topics in the Greek Inscriptions. Associate Professor ROBINSON.
Two hours weekly, second half-year.

NOTE.—The University collection contains nearly two hundred original inscriptions, extending in date from 500 B. C. to 500 A. D. These, together with casts, squeezes and other reproductions, furnish material for original investigation in this field.

3. The history of Ancient Roman Painting, with especial reference to interior decoration. Professor WILSON.
Weekly, second half-year.

4. The Topography and Monuments of Ancient Rome, with particular reference to the Roman Forum. Professor WILSON.
Weekly, through the year.

5.* An introduction to Latin Epigraphy, with practical exercises in the interpretation of inscriptions from original stones and published texts. Professor WILSON.
Weekly, through the year.

6. Life and Art in the Mycenæan Age and their relation to Homer. Associate Professor ROBINSON.
Weekly, first half-year.

7. Outlines of Greek Architecture. Associate Professor Robinson.

Weekly, second half-year.

8. Greek Epigraphy, with practical exercises in reading from squeezes and original stones. Associate Professor Robinson.

Weekly, first half-year.

9.* The history of Greek Sculpture. Associate Professor Robinson.

Weekly, through the year.

UNDERGRADUATE COURSES

1. Outlines of Classical Archæology; lectures and conferences.

Three hours weekly, through the year. Professor Wilson and Associate Professor Robinson.

This course is intended to furnish a rapid survey of the principal fields of Greek, Etruscan, and Roman archæology and art. Knowledge of Latin and Greek is not required.

2. The Private Life of the Romans.

Weekly, through the year. Professor Wilson.

3. The Private Life of the Greeks.

Weekly, through the year. Associate Professor Robinson.

Courses 2 and 3 are parts of Latin 4 and Greek 4, respectively, but may be pursued by any student of the University. Taken together they count as half a course, and with the course in Roman Literature (Latin 3) as a full course.

Sanskrit and Comparative Philology

Slavic Philology

Courses of instruction, directed by Professor Bloomfield, with the assistance of an Instructor or Fellow in Sanskrit, are provided in the Indo-Iranian languages

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*This course will be given at a late hour in the afternoon for the benefit of those who are unable to attend in the morning.

(Vedic and Classical Sanskrit, Pāli and Prākrit, Avestan and Old Persian), in Comparative Grammar of the Indo-European languages, in historical Ethnology of the Indo-European peoples, and in general Linguistic Science. During recent sessions several courses in Lithuanian, one of the Balto-Slavic languages, were given, and last session Dr. Edgerton conducted a course in Russian. During the coming session courses in Old Bulgarian and Russian are offered by Dr. Edgerton; see the statement of these courses at the end of this rubric.

These courses aim to meet the wants of those who wish to devote themselves to the study of these branches exclusively and for their own sake, *i. e.,* those who wish to become specialists in Sanskrit Philology or Comparative Philology; and also the needs of students of languages in general, who wish to obtain a broader linguistic basis for special studies in other departments of philology.

The advanced work aims specially to meet the wants of those who wish to make Indian Philology or Comparative Philology their special study. This work centres in the Sanskrit Seminary and not infrequently involves the use of Sanskrit manuscripts.

A prolonged course in Sanskrit, involving two lectures a week during two years and attendance in the Sanskrit Seminary for a half-year (one hour a week), is planned, so as to furnish a good knowledge of Classical Sanskrit, and to include an introduction into the dialect of the Vedas. This amount of work represents material sufficient for the first subsidiary subject for the degree of Doctor of Philosophy. A course in the same study for one and a half years, involving two hours a week, is the amount required for a second subsidiary subject leading to the same degree.

A synopsis of the courses offered during past years may be presented under the following heads:

I. Courses in the general principles of comparative philology or linguistic science, and on special chapters thereof; lectures on ethnology and the history of religions.

II. Courses in the general comparative grammar of the Indo-European languages; comparative grammar of Sanskrit and Avestan; comparative study of Indo-European accentuation; comparative study of Greek, Latin, Sanskrit, and Teutonic, including vocalism, consonantism, noun-formation, and inflections.

III. The Vedic, Sanskrit, and Prākrit dialects; Rig-Veda; Atharva-Veda; literature of the Brāhmanas and Upanishads. The law books of Manu and Yājñavalkya; the Drama Çakuntalā and introduction into Prākrit; Pañcatantra, Hitopadeça, Kathāsaritsāgara, and Nala. Sanskrit grammar and prose composition.

IV. The Pāli language and Buddhist literature.

V. The Avestan language and the sacred books of the Avesta.

VI. The Lithuanian language and literature; Russian language and literature.

The following courses, in charge of Professor Bloomfield, will be given during the session of 1911-1912:

A. *Linguistic Science and Comparative Grammar of the Indo-European Languages.*

1. The elements of Linguistic Science, with an account of the Ethnology and Religions of the Indo-European peoples. *Weekly, through the year.*

2. Comparative grammar of the more familiar Indo-European languages (Greek, Latin, German, and Sanskrit): The phonetics and history of the Indo-European consonants. *Weekly, through the year.*

B. *Indo-Aryan Philology.*

3. Sanskrit Seminary: The Hindu Beast Fables of the cycle of the Pañcatantra. *Weekly, through the year.*

4. Advanced course in the Veda: Selected Vedic prose (Brāhmanas and Upanishads). *Weekly, through the year.*

5. The Elements of Vedic philology: Vedic grammar, metres, and interpretation of selected hymns of the Rig-Veda. *Weekly, second half-year.*

6. The Pāli language and selections from Buddhist literature. *Weekly, through the year.*

7. Beginners' course in Sanskrit: grammar (Whitney's Sanskrit Grammar) and interpretation of an easy

text (Lanman's Reader). *Twice weekly, through the year.*

8. Selections from the Hitopadeça and the Law-Book of Manu (second year's course in Classical Sanskrit). *Twice weekly, first half-year.*

NOTE.—No knowledge of Sanskrit is presupposed for courses 1, 2, and 7. Course 1 sketches briefly the history of the Science of Language; presents a systematic account of the ethnology and religions of the Indo-European peoples; deals with the principles that govern the life and growth of language, and finally treats of the origin of language. Course 2 is intended as an elementary introduction into the methods and results of the Comparative Grammar of the more important Indo-European languages.

The following courses in Slavic Philology, offered by Dr. Edgerton, are intended to meet the needs, first, of students who desire some acquaintance with Historical and Comparative Slavic Philology. For this purpose, course 9 is basic, dealing with the most ancient and fundamental of the Slavic languages. Course 10 is also conducted with due regard to Historical Grammar, and those who desire will be able to obtain from it a general idea of the relation of the Slavic group to the rest of the Indo-European family, even without previous knowledge of Old Bulgarian. Secondly, courses 10 and 11 are intended for those who desire a practical reading knowledge of Russian, and some first-hand acquaintance with the great authors of Russian literature. Course 10 is for those who know no Russian: Course 11 for more advanced students who desire practice in rapid reading, combined with some literary comment and criticism.

9. Old Bulgarian. Historical study of the forms and inflections of the language, with practice in reading and analysis of representative texts (Leskien's Handbuch der Altbulgarischen Sprache). *Weekly, through the year.*

10. Elements of the Russian language. Brief survey of grammar, followed by selected readings from modern

writers (Berneker's Russische Grammatik and Boehme's Russische Literatur (2 vols.) both published in the Sammlung Göschen). *Twice weekly, through the year.*

11. Modern Russian Fiction. First half-year: Selected short stories of Gogol, Turgeniev, Tolstoi, Gorky, Chekhov and Andreev. Second half-year: One longer novel each by Turgeniev and Dostoievsky. *Weekly, through the year.*

ORIENTAL SEMINARY

The various courses are adapted to the requirements of four classes of students, namely: (*a*) students of theology wishing to obtain a thorough acquaintance with the sacred tongue and its sister idioms as a means of elucidating Scripture and problems of the comparative history of religion; (*b*) students of linguistics intending to make comparative grammar of the Semitic languages their specialty; (*c*) students of Oriental history and archæology desirous of drawing directly from the original sources; (*d*) persons looking for instruction in the living Oriental languages (as modern Arabic, Turkish, Persian, modern Hebrew, Amharic, Malay, Tagalog, etc.) for practical purposes.

A room has been set apart containing a well-equipped working library for all the branches of Oriental research (including the library of the late Professor A. Dillmann, of Berlin, the Leopold Strouse Semitic Library, a special collection of works on Philippine dialects, etc.), and some advanced students are usually present to help in the preparation for the recitations conducted by the Director of the Seminary, and to furnish any other aid that may be desired. Near the Dillmann Library, on the same floor, are some archæological and antiquarian collections, including the Cohen Collection of Egyptian Antiquities, the Sonneborn Collection of Jewish Ceremonial Objects, collections of Hebrew and other Oriental manuscripts, Babylonian seal-cylinders and clay tablets, etc.

The following courses are offered for the academic year 1911-12:

Oriental History, Literature, and Archaeology

1. History of the Ancient East (Egypt, Babylonia, Assyria, Persia, Israel, and Judah). Dr. Poebel. *Thursday, 4 p. m.*

2. The Cuneiform Inscriptions and the Old Testament. Dr. Poebel. *Thursday, 5 p. m.*

3. Jewish Ceremonial Institutions. Dr. Rosenau. *Tuesday, 2 p. m.*

4. The Literature of the Old Testament (with special reference to date and authorship). Dr. Blake. *Thursday, 5 p. m.*

5. Interpretation of Selected Chapters of the Old Testament (on the basis of the Authorized Version). Professor Haupt and Dr. Blake. *Friday, 4 p. m.*

Biblical Philology

6. Elementary Hebrew. Dr. Ember. *Three hours weekly.*

7. Hebrew: Second Year's Course. Dr. Ember. *Two hours weekly.*

8. Hebrew Phonology. Dr. Blake. *Friday, 3 p. m.*

9. Unpointed Hebrew Texts. Dr. Rosenau. *Monday, 9 a. m.*

10. Prose Composition (Hebrew, Arabic, Assyrian, and Sumerian). Professor Haupt. *Monday, 5 p. m.*

11. Comparative Semitic Grammar. Professor Haupt. *Monday, 4 p. m.*

12. Old Testament Seminary (Critical Interpretation of the Books of Haggai, Malachi, and Obadiah). Professor Haupt. *Tuesday, 3 to 5 p. m.*

13. Cursory Reading of the Hebrew Bible. Dr. Blake. *Tuesday,* 10 *a. m.*

14. Post-Biblical Hebrew. (Selections from the Mishnah and the Talmud). Dr. Rosenau. *Monday,* 2 *p. m., Tuesday,* 9 *a. m.*

15. Jewish Philosophers of the Middle Ages. Dr. Rosenau. *Monday,* 10 *a. m.*

16. Modern Hebrew. Dr. Ember. *Tuesday,* 11 *a. m.*

17. Hebrew Conversation. Dr. Ember. *Monday and Friday,* 11 *a. m.*

18. Biblical Aramaic Grammar and Interpretation of the Aramaic Portions of the Book of Daniel. Dr. Blake. *Friday,* 5 *p. m.*

Syriac

19. Syriac (Roediger's Chrestomathy). Dr. Blake. *Wednesday,* 3 *p. m.*

Arabic

20. Elementary Arabic (with special reference to students of Romance Languages). Dr. Ember. *Monday,* 5 *p. m.*

21. Arabic for Beginners (with special reference to students of Hebrew). Dr. Ember. *Tuesday,* 5 *p. m.*

22. Selections from the Coran and the Arabian Nights. Dr. Ember. *Wednesday and Thursday,* 10 *a. m.*

23. Arabic Prose Composition. Professor Haupt. [See No. 10.]

Ethiopic.

24. Elementary Ethiopic. Dr. Blake. *Wednesday,* 5 *p. m.*

Assyriology.

25. Assyrian for Beginners. Dr. Poebel. *Wednesday,* 4 *p. m., Thursday,* 3 *p. m.*

26. The Cuneiform Annals of the Assyrian Kings. Dr. Poebel. *Tuesday and Friday,* 10 *a. m.*

27. Selected Sumerian Texts. Dr. Poebel. *Tuesday, 11 a. m.*

28. The Literature of Babylonia and Assyria. Dr. Poebel. *Friday,* 11 *a. m.*

29. Interpretation of the Babylonian Nimrod Epic. Professor Haupt. *Tuesday,* 5 *p. m.*

30. Assyrian and Sumerian Prose Composition. Professor Haupt. [See No. 10.]

Egyptology

31. Egyptian for Beginners. Dr. Ember. *Wednesday,* 9 *a. m.*

32. Selected Hieroglyphic Texts. Dr. Ember. *Tuesday,* 1 *p. m.*

33. Elementary Coptic. Dr. Ember. *Tuesday,* 2 *p. m.*

Malayo-Polynesian Philology

34. Malay. Dr. Blake. *Monday,* 4 *p. m.*

35. Elementary Tagalog. Dr. Blake. *Monday,* 5 *p. m.*

Journal Meeting

36. Journal Meeting. Professor Haupt. *Monday,* 3 *p. m.*

English

GRADUATE COURSES

In the graduate courses the subject of English is studied with reference to the historical and technical aspects of linguistic and literary science. The usual sequence of courses enables a student, in three or four years, to study with precision the important departments of grammar and of literature, and to become trained in the process of original investigation. Instruction is imparted by lectures, by freer conferences, by the methods of the Seminary, and by class-room recitation. A Journal Club is conducted for the purpose of supplementing the regular courses with reports of the current work of scholars.

1. *English Seminary*

Graduate students are admitted to the Seminary as soon as they have satisfied initial requirements for independent research.

In the academic year 1911-12, the Seminary will be engaged in the study and investigation of the following subjects:

(*a*) English Literature of the Nineteenth Century. *First half-year.*

(*b*) English Literature of the Fourteenth Century. *Second half-year.*

The Seminary will be conducted by Professor BRIGHT. *Tuesday and Thursday,* 3-5 *p. m.*

2. Lectures on Historical Grammar, Versification, and Literary Criticism. Professor BRIGHT. *Tuesday and Thursday,* 12 *m.*

3. Interpretation of selected texts. Professor BRIGHT. *Monday,* 12 *m.*

4. The Journal Club of the English Seminary. Professor BRIGHT. *Alternate Fridays,* 3-5 *p. m.*

5. Professor John William Cunliffe, of the University of Wisconsin, will give a course of lectures on the comparative study of the drama, especially on Renascence Tragedy in Italy, France, and England. *Beginning of the second half-year.*

UNDERGRADUATE COURSES

Introductory courses in (*a*) Rhetoric and English Composition, (*b*) Platform Speaking and Forensics, and (*c*)

English Literature, are prescribed for all undergraduate students. For those who may wish to continue their study in any of these departments, elective courses are provided in the various forms of discourse and in the more important periods of English and American literature. Further practice in debating is provided in connection with the elective course in exposition and argument, and in the annual inter-class and inter-collegiate debates.

English Composition

1. Rhetoric and English Composition.

Theory based upon text-books, lectures, and discussions; critical study of prose writers; frequent practice in writing. This course is prescribed during the first year.

Three hours weekly, through the year. Dr. French and Dr. C. A. Myers.

1*a*. English Composition.

This course is prescribed during the second year. Students who have attained a mark of "8" on the work of the first year are excused from this course.

One hour a week, through the year. Dr. Myers.

2. Description and Narration.

Readings in standard prose. Practice in writing.

One hour a week, through the year. Professor Greene.

3. Exposition and Argument.

During the first term the theory of exposition with frequent practice in expository writing. During the second and third terms, the theory of argument; practice in writing; platform speaking and debate.

Two hours weekly, through the year. Dr. French.

Public Speaking

1. Reading and Platform Speaking.

In this course attention is paid to correct habits of breathing and to enunciation and expression. Practice in the preparation and delivery of speeches adapted to various special occasions is obtained in the second half-year. The course is prescribed during the second year.

One hour a week, through the year. Dr. French.

2. Public Speaking.

The principles of argumentation; practice in argumentative writing and in debate; parliamentary procedure. This course is prescribed during the third year.

One hour a week, through the year. Dr. French.

Note.—Additional practice in platform speaking and in debate is provided in English Composition 3. A more specific statement respecting these courses is made on page 71.

English Literature

1. English Literature: introductory course.

The class will become acquainted with the course of English Literature from the seventh century until about 1600. Much of the poetry of Chaucer, Spenser, and Shakespeare will be read in the class-room and in private reading. This course is prescribed during the second year.

Three hours weekly, through the year. Professor Greene.

2. English Literature, 1600-1774.

First half-year: English Literature from 1600 to 1674; special attention will be given to the English Bible and to the works of Bacon and Milton.

Second half-year: From the Restoration to the death of Goldsmith (1660-1774); special attention will be given to the writings of Dryden, Addison, Steele, Swift, Pope, Gray, Goldsmith, and Johnson.

Three hours weekly, through the year. Professor Greene.

3. English Literature, 1765-1892.

First half-year: English Literature from the publication of Percy's *Reliques* to the death of Coleridge (1765-1834); the study will include English and Scottish Popular Ballads, and the writings of Burns, Wordsworth, Coleridge, Keats, Shelley, Byron, and Scott.

Second half-year: Tennyson and Browning; novelists and essayists since 1832.

Three hours weekly, through the year. Professor Greene.

4. American Literature.

Literary history in outline; critical study of selected authors; written reports on assigned reading.

Two hours weekly, through the year. Dr. French.

5. English Literature.

First half-year: The English Drama from its beginnings to the closing of the theatres in 1642. After a rapid survey of the origin and development of the drama in England, the greater dramatists of the Elizabethan and Post-Elizabethan periods will be studied in some detail.

Second half-year: The Rise and Development of the English Novel.

Three hours weekly, through the year. Dr. MYERS.

6. English.

First half-year: Anglo-Saxon,—Language and Literature.

Second half-year: Middle English,—Language and Literature.

Three hours weekly, through the year. Dr. MYERS.

GERMAN

Under this head are included German Language and Literature and subjects in the wider field of Germanic Philology. Regular instruction, through seminary and lectures, is given in German Literature of the older and newer periods, and in Gothic, Comparative Germanic Grammar, Old High German, and Middle High German; while occasional courses are offered in Old Norse, Old Saxon, and Old Frisian.

Seminary

The library of the German Seminary, to which all advanced students have the fullest access, is open Mondays to Fridays from 9 a. m. to 5 p. m., and Saturdays from 9 a. m. to 1 p. m. The Seminary treats, in successive half-years, some theme from the period of German Classicism or Romanticism, and a subject from the literature of Middle High German. During the year 1911-12 the Seminary will meet three times weekly. The subject for the first half-year will be Goethe's *Faust*. In the study of the First Part, beginning with the Urfaust, the questions of conception and composition of the drama will be considered, in chronological order, from the point of view of Goethe's mind and art. The Second Part will be interpreted in selected portions, and Goethe's draft of particular scenes and of the uncompleted plot will be examined, together with the Paralipomena. The Seminary for the first half-year will be conducted by Professor Wood. During the second half-year two of the representative Middle High German courtly epics will be studied, viz.: Hartmann von Aue's *Iwein* and Gottfried von Strassburg's *Tristan*. The Seminary will be in charge of Professor Collitz during the second half-year.

Students are requested to procure Goethe's *Faust*, the First Part, edited by Calvin Thomas, second edition, Boston, 1898; Goethe's Sämmtliche Werke, Jubiläums-Ausgabe, 13 Bd. *Faust*, hrsg. Erich Schmidt. Stuttgart (Cotta); Fr. Strehlke, *Paralipomena zu Goethe's Faust*, Stuttgart, 1891; *Iwein*, hrsg. Benecke und Lachmann, 4 Ausgabe, Berlin, 1877; *Tristan*, hrsg. K. Marold, 1 Band, Text, Leipzig, 1906 (Teutonia, 6. Heft).

Germanic Society

The Germanic Society, which includes as members all the instructors and advanced students in German, meets fortnightly. Before it are presented not only reports on articles in current journals, but also successive results of studies by the members. The chief object of the Society is to foster and guide the aptitude for more sustained individual investigation than the collective work of the Seminary offers scope for.

ADVANCED COURSES

1. The German Romantic School.

Professor Wood. *Two hours weekly, first half-year.*

The beginnings of Romanticism in German Literature will be studied in works of Tieck, Friedrich and August Wilhelm Schlegel, and Novalis. The relation of the German classicists (Goethe) to the new literary movement will then be considered, and this will be followed by the reading of representative works of the later German romanticists.

2. History of German Literature in the later Seventeenth and the earlier Eighteenth Century.

Professor Wood. *Two hours weekly, first half-year.*

After a review of the Second Silesian literary movement, the critical reforms at the close of the seventeenth century will be considered in detail, after which a series of representative eighteenth century works will be read, extending to the beginnings of German Classicism. The movements will be considered from the point of view of literary form, and the attempt will be made to characterize the various representative forms as nationally German, or as adaptations from foreign sources, or, finally, as an evolution from both.

3. Gothic and the elements of Comparative Germanic Grammar.

Professor Collitz. *Two hours weekly, through the year.*

Students are requested to procure Braune, *Gotische Grammatik*, 7. Auflage, Halle, 1909.

4. Old High German (Introductory Course).

Professor Collitz. *Weekly, through the year.*

Braune's *Abriss der Althochdeutschen Grammatik*, 4. Auflage, Halle, 1906, will be used; also the same author's *Althochdeutsches Lesebuch*, 6. Auflage, Halle, 1907.

5. Reynard the Fox in Middle Low German.

Professor Collitz. *Weekly, first half-year.*

Students are requested to procure the edition of *Reinke de Vos* by A. Lübben, Oldenburg, 1867.

6. Middle High German (Introductory Course).

Associate Professor Kurrelmeyer. *Twice weekly, first half-year.*

Paul, *Mittelhochdeutsche Grammatik*, 7. Auflage, Halle, 1908; Bachmann, *Mittelhochdeutsches Lesebuch*, 4. Auflage, Zürich, 1909.

7. Goethe's *Clavigo* and *Die Mitschuldigen*.

Associate Professor Kurrelmeyer. *Weekly, second half-year.*

From the point of view of recent text criticism, the attempt will be made to reconstruct the authentic form of the two dramas, as compared with the text in the *Ausgabe letzter Hand*.

Special Courses

*1. Scientific German.

Two hours weekly, through the year. Associate Professor Kurrelmeyer.

*2. Historical German.

Two hours weekly, through the year. Dr. Roulston.

3. German Conversation.

Weekly, through the year. Mr. Hofmann.

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*Courses 1 and 2 are for graduates who lack the ability to read German at sight.

UNDERGRADUATE COURSES

German Elements.

Vos, Essentials of German; Gerstäcker, *Germelshausen;* Keller, *Kleider machen Leute;* Wilhelmi, *Einer muss heiraten;* von Wildenbruch, *Das edle Blut;* Prose Composition; Grammar.

Four hours weekly, through the year. Associate Professor KURRELMEYER.

This course is intended only for students who have matriculated in Greek. For such students, it absolves the requirements in German for the baccalaureate degree; other students must absolve course 1.

German 1.

Modern Prose Readings: C. F. Meyer, von Saar, Fulda, Keller, Sudermann.

Section I. Dr. ROULSTON. *Three hours weekly, through the year.*

Section II. Associate Professor KURRELMEYER. *Three hours weekly, through the year.*

Prose Composition.

Weekly through the year. Professor WOOD (*First half-year*); Dr. ROULSTON (*Second half-year*).

Private Reading.

German 2.

Classical Authors: Schiller, *Maria Stuart, Die Braut von Messina;* Goethe, *Hermann und Dorothea.*

Twice weekly, through the year. Dr. ROULSTON.

Prose Composition.

Weekly, through the year. Dr. ROULSTON.

Private Reading.

German 3.

Goethe, *Faust, Tasso, Iphigenie.*

Two hours weekly, through the year. Professor WOOD (*First half-year*); Dr. ROULSTON (*Second half-year*).

History of Literature (Classical Period). Lyrics and Ballads.

Weekly, through the year. Dr. ROULSTON.

The work in Goethe and in the History of Literature, etc., may be taken separately.

German 4.

Contemporary Literature, in rapid readings.

Three hours weekly, first half-year. Associate Professor KURRELMEYER.

German 5.

Historical Readings.

Schiller, *Der dreissigjährige Krieg;* Freytag, *Aus dem Jahrhundert der grossen Krieges;* von Sybel, *Die Erhebung Europas.*

Two hours weekly, through the year. Dr. ROULSTON.

German 6.

Scientific German.

Lassar-Cohn, *Die Chemie im täglichen Leben;* von Helmholtz, *Ueber Goethes naturwissenschaftliche Arbeiten;* Walther, *Allgemeine Meereskunde.*

Two hours weekly, through the year. Associate Professor KURRELMEYER.

This course is open to students who have completed Course 1.

German 7.

German Conversation.

Weekly, through the year. Mr. HOFMANN.

ROMANCE LANGUAGES

Instruction is provided in the three leading Romance languages and literatures, and the advanced work is so arranged that the student may elect any one of the three as his principal subject of study.

In addition to lectures and regular class exercises, there is a French, a Spanish, and an Italian Seminary, each one of which provides practical training in methods of independent research and may be participated in by such students as show sufficient preparation. The Romance Journal Club, composed of the staff and graduate students of the department, furnishes an opportunity, at its weekly meetings, for discussion of some of the more important current literature bearing on the Romance Languages and for the presentation of such original papers by its members as do not fall within the scope of the Seminaries.

The library facilities of the University, recently enlarged by the addition of the A. Marshall Elliott Library are further supplemented by the numerous Romance works in the Peabody and Enoch Pratt Libraries, an by the readily accessible material in the Library of Congress.

Certain of the courses are conducted entirely in French; preliminary instruction is provided in the undergraduate department for students who are not equipped to follow these courses as regular members.

Courses marked (*) will be given at an afternoon hour, or in the forenoon of Saturday.

ADVANCED COURSES

French

French Seminary (Language): Studies in Word History.

Professor ARMSTRONG. *Two hours fortnightly.*

French Seminary (Literature): Flaubert, *Salammbô.*

Associate Professor TERRACHER. *Two hours fortnightly.*

French Syntax: Verb.

Professor ARMSTRONG. *Weekly.*

French Phonology and Morphology.

Professor ARMSTRONG. *Two hours weekly.*

*Phonetics and French Pronunciation.

Professor ARMSTRONG. *Weekly.*

*Interpretation of Early Old French Texts (Foerster and Koschwitz, *Altfranzösisches Uebungsbuch*).

Professor ARMSTRONG. *Weekly.*

Les premières épopées françaises: conférences et interprétation des textes (*Gormond et Isembart, Le pélerinage de Charlemagne, La chanson de Guillaume, La chanson de Roland).*

Associate Professor TERRACHER. *Two hours weekly.*

La littérature française au XVI^{e} siècle (Darmesteter et Hatzfeld, *Le seizième siècle en France*).

Associate Professor TERRACHER. *Weekly.*

*French Literature in the Seventeenth Century (Lectures and extensive reading).

Associate Professor BRUSH. *Weekly.*

*Voltaire.
Associate Professor Terracher. *Weekly.*

Explications françaises (Marcou, *Morceaux choisis,* poètes et prosateurs).
Associate Professor Terracher. *Weekly.*

A course of fortnightly lectures, under the auspices of the Alliance Française of Baltimore, will be given by Professor P. F. Giroud on "Le théâtre en France pendant la Révolution et sous l'Empire."

Spanish

Spanish Seminary: The Spanish Ballad.
Professor Marden. *Two hours weekly.*

Spanish Historical Grammar.
Professor Marden. *Two hours weekly.*

*Readings in Old Spanish Literature (*Poema del Cid* and other texts).
Professor Marden. *Weekly.*

The Beginnings of Spanish Literature.
Professor Marden. *Weekly.*

Italian

Italian Seminary: The *Inferno* of Dante.
Associate Professor Shaw. *Two hours weekly.*

Italian Historical Grammar.
Associate Professor Shaw. *Two hours weekly.*

*The Poetry of Giosuè Carducci: lectures and text interpretation.
Associate Professor Shaw. *Weekly.*

General

Introduction to Gallic Folk Latin.
Professor Armstrong. *Two hours weekly, first half-year.*

Romance Paleography.
Dr. Keidel. *Weekly.*

Romance Journal Club.
Weekly.

UNDERGRADUATE COURSES

French

French Elements.

a. The Essentials of Grammar. Fraser and Squair, *French Grammar, Part I.*

b. Easy French Texts: Dumas, *Le Chevalier de Maison-Rouge;* Labiche, *La Grammaire;* About, *La Mère de la marquise;* Augier, *Le Gendre de M. Poirier.*

Four hours weekly, through the year. Mr. Grünbaum.

This course is intended only for students who have matriculated in Greek, and have fully met *at entrance* the matriculation requirements; for such students, it absolves the requirements in French for the baccalaureate degree. Other students must take French 1.

French 1 (*Intermediate Course*).

a. Modern French Prose Writers: Dumas, Daudet, Coppée, Maupassant, Mérimée, Labiche and Martin, Augier, Theuriet, Hugo, Balzac. Classics: Corneille, *Le Cid;* Racine, *Andromaque;* Molière, *Le Bourgeois Gentilhomme, les Femmes savantes.*

b. Grammar and composition based on a French text. Exercises in pronunciation and dictation.

c. Private Reading: Foncin, *Le Pays de France;* Fortier, *Histoire de France;* Lamartine, *Scènes de la Révolution française.*

Four hours weekly, through the year. Associate Professor Brush, Mr. Grünbaum, and Mr. Blossom.

French 2 (*Advanced Course*).

a. The Nineteenth Century. Readings from Hugo, Lamartine, Gautier, Alfred de Vigny, Alfred de Musset, Balzac, Flaubert, Zola, Maupassant, France, Loti, Bazin. Bowen's *French Lyrics.*

b. Prose composition; dictation.

c. Lectures on French literature and on French life.

d. Private reading.

Three hours weekly, through the year. Associate Professor Brush.

French 3.

Classics of the Seventeenth and Eighteenth Centuries. Readings from Corneille, Racine, Molière, Lesage, Voltaire, Rousseau. Warren's *French Prose of the Seventeenth Century.*

Two hours weekly, through the year. Associate Professor Brush.

French 4.

The Development of the Novel.

Lectures; private reading.

Two hours weekly, through the year. Associate Professor Brush.

French 5.

Advanced Composition.

Weekly, through the year. Mr. Blossom.

French 6.

Readings in Historical and Scientific French Prose.

Two hours weekly, through the year. Mr. Grünbaum.
Open to students who have had one year of preparatory French.

French 7.

Exercises in French Conversation.

Weekly, through the year. Mr. Blossom.
University credit is not given for courses 6 and 7.

Spanish

1. Hills and Ford, *Spanish Grammar;* Prose Composition; Isla, *Gil Blas;* Alarcón, *El Capitán Veneno;* Palacio Valdés, *José.*

Three hours weekly, through the year. Professor Marden.
This course is adapted to beginners.

2 Pérez Galdós, *Doña Perfecta;* Pereda, *Pedro Sánchez;* Ruiz de Alarcón, *La verdad sospechosa;* Calderón, *La vida es sueño;* Cervantes, *Don Quixote.*

Grammar and Prose Composition. History of Spanish Literature.

Three hours weekly, through the year. Mr. Blossom.
This course is open to students who have completed course 1 or its equivalent.

Italian

1. Grandgent, *Italian Grammar;* Marinoni, *Italian Reader;* Fogazzaro, *Pereat Rochus.*

Three hours weekly, through the year. Associate Professor SHAW.

2. Grandgent, *Italian Grammar, Italian Composition.* Selections from classic authors. A text-book of Italian Literature.

Three hours weekly, through the year. Associate Professor SHAW.

HISTORY

Facilities for research are offered in the principal fields of history. Special attention is given to methods of investigation and each advanced student comes under the personal direction of the instructors in his chosen field. This supervision is obtained through seminary meetings and frequent private consultation.

In addition to the library of the university, students make use of the admirable collections of source material in the Peabody Library and the Maryland Historical Society, and are in constant touch with the great resources of the Library of Congress and the departments in Washington. The university library has recently received large and important accessions of historical works and documentary material.

GRADUATE COURSES

European History. The courses in European History direct attention to the social, economic, and constitutional development of European peoples. The subjects follow in consecutive order, the topics for each year forming a complete and independent group. The series requires three years for completion and offers opportunities for close study of selected portions of the mediæval and early modern history of the Continent. A weekly seminary is held for the study of problems in European history and institutions.

Courses in Latin palæography and in French palæography are given in their respective departments.

English History. The constitutional and social history of England is treated in connection with the corresponding periods in European history. A part of the seminary work is devoted to problems in this field and direction is given to further special research.

American History. The courses in American History are arranged in a cycle of three years. They begin with the history of British colonization in America and deal with the constitutional and economic growth of the colonies and the constitutional and political history of the United States after 1783. A weekly seminary is held for research in special subjects in American History.

Ancient History. The courses in Ancient History take into consideration the constitutional, social, artistic, and economic development of the peoples of Greece and Italy. Special attention is given to the historical evidence furnished by epigraphy and archæology. The constitutional history of Greece and Rome is supplemented by lectures on the Roman Law. Certain portions of Oriental History are treated in the departments of Semitics and Sanskrit.

Special Lectures. The Albert Shaw Lectures on Diplomatic History are given annually by investigators in selected fields of American and foreign relations. The scope of the lectures is not confined to the United States, but lectures on European diplomatic history will also find their due place. The course for 1910-11 was given by Dr. C. O. Paullin, of Washington, D. C., on "The Diplomatic Activity of the American Navy in the Far East." In 1911-12 the lecturer will be Professor Isaac J. Cox, of the University of Cincinnati, on the diplomatic negotiations connected with the annexation of West Florida.

The James Schouler Lectures in History and Political Science are given annually by lecturers of prominence, upon topics indicated in the title of the lectureship. These lectures are open to the public as well as to the students and members of the University. The course for 1909 was given by Dr. Abbott Lawrence Lowell, President of Harvard University, and that for 1910 by George Walter Prothero, Litt. D., formerly professor of history in the University of Edinburgh, now editor of the *Quarterly Review* and Honorary Fellow of Queen's College, Cambridge. The lecturer for 1911 was Professor John Bassett Moore, of Columbia University.

Other lectures of interest to the students of this department, either open to the public or designed for class instruction, are given from time to time by distinguished scholars outside the university. These lectures are, in part, provided for from the income of the fund bequeathed by the late Professor Herbert B. Adams.

Historical and Political Science Association. This monthly meeting of the instructors and students of the departments of history, political economy, and political science affords an opportunity to hear addresses from prominent specialists, to consider important movements and undertakings, and to present critical reviews of recent publications in the fields of history, political economy, and political science.

For the year 1911-12 courses will be given as follows:

Professor VINCENT.

1. Constitutional History of England.

After a rapid review of the beginnings of parliamentary government, the course will devote special attention to the period from the seventeenth to the nineteenth century.

Two hours weekly, through the year.

2. The Reformation.

With the study of the religious questions will be included the economic and social conditions which accompanied the movement in western Europe.

One hour weekly, through the year.

3. Seminary of European and English History.

Two hours, alternate weeks, through the year.

Professor Ballagh.

1. The Development of the American Revolution.

One hour weekly, first half year.

2. The Sources and Formation of the United States Constitution.

One hour weekly, second half year.

3. History of the United States Public Land System.

One hour weekly, through the year.

4. Seminary in American History.

Two hours, alternate weeks.

Dr. Magoffin.

1. History of Greece during the Hellenistic Period.

One hour weekly, through the year.

2. History of Rome and Italy from 133 to 44 B. C.

One hour weekly, through the year.

UNDERGRADUATE COURSES.

1. History of Greece and Rome.

The political and constitutional history of Greece and Rome, approached through the translated texts of Herodotus, Thucydides, Suetonius, Tacitus, and others, with the aid of modern authorities.

Three hours weekly, through the year. Dr. Magoffin.

2. European History. [To be given in 1912-13.]

From the decline of the Roman Empire to the nineteenth century, dealing with the Romano-Barbarian kingdoms, the empire of Charles the Great, feudalism, the crusades, empire and papacy, renaissance, the Protestant revolution, the religious wars, eighteenth century states and the doctrine of the balance of power, the French Revolution, the Napoleonic period, and the reorganization of Europe in the nineteenth century.

Three hours weekly, through the year. Professor Vincent.

3. English History.

Chiefly constitutional and political, dealing with the origins and development of parliamentary institutions, the relations of England with Continental Europe, and the modern expansion of the British Empire.

Three hours weekly, through the year. [Tuesday, Thursday, Friday, 9 a. m.] Professor VINCENT.

4. American History.

Colonial history and institutions, the formation of the Union, the development of constitutional government and law, the growth of foreign policy, the expansion of the nation. Emphasis will be laid on the national period, and the subject will be brought to the close of the nineteenth century. Open to students who have had History 2 or 3 or Political Economy 1.

Three hours weekly, through the year. Professor BALLAGH.

POLITICAL ECONOMY

GRADUATE COURSES

The graduate instruction in Political Economy is designed primarily to meet the needs of advanced students preparing for a professional career in economic science. The courses afford systematic instruction in general economic principles, intimate acquaintance with special fields of economic activity, and, most important of all, knowledge of and ability to employ sound methods of economic research. The work centers in the Economic Seminary, the membership of which is limited to the most advanced students, and the primary design of which is to develop scientific research in economic study and investigation.

Formal graduate instruction is offered in Economic Theory and in Applied Economics, by parallel courses of lectures throughout the year. The particular topics treated vary from year to year. In 1909-10 Professor Hollander lectured two hours weekly on the economic system of David Ricardo, and two hours weekly on the history and theory of taxation. During the year 1910-11 attention was given in the course on economic theory to the principles of political economy. In the course on applied economics, careful study was made of the history and theory of municipal finance. Professor Barnett lectured during the first half-year on the history of industrial corporations and during the second half-year on the regulation of corporations. Special courses of lectures were given during the year by Dr. Frank R. Rutter, of the Department of Commerce and Labor, on "The Tariff Problem;" by Professor Thomas W. Page, of the University of Virginia, on "Immigration;" and by Mr. Logan G. McPherson, Director of the Bureau of Railway Economics, on "Transportation."

The courses offered for 1911-12 are as follows:

1. The Economic Seminary.

Two hours weekly, through the year. Professors Hollander and Barnett.

The work of the year will continue to be a systematic study of the history, structure, and activities of labor organizations in the United States.

2. Economic Theories since Adam Smith.

Two hours weekly, through the year. Professor Hollander.

A critical survey will be made of the development of fundamental concepts of economic science from Adam Smith to current thought. The topical or cross-sectional method of treatment will be adopted, and the history of the theories of Wages, Interest, Profits, Rent, Value, Production, Distribution, and Consumption will be successively reviewed.

3. American Public Finance.

Two hours weekly, through the year. Professor Hollander.

The financial experiences of the States and Territories of the United States will be taken as the basis for critical and comparative study. Attention will be paid to recent tendencies in commonwealth taxation and exercise will be afforded in the use of original sources of financial information.

4. Banking.

One hour weekly, through the year. Professor Barnett.

During the first half-year the history of American banking will be considered. During the second half-year attention will be given to a comparative study of modern banking systems.

Special courses of lectures will be given by non-resident lecturers upon such practical economic problems as charities and correction, railway transportation, industrial organization.

A reading class is organized yearly by the more advanced students of the department for the co-operative study of economic texts and for the critical discussion of current economic literature.

In co-operation with the departments of history and political science, opportunity is offered in the Historical and Political Science Association for the presentation and discussion of original papers in economic science by instructors and invited speakers, and for the review by students of current publications of importance in these fields.

UNDERGRADUATE COURSES

1. (*a*) Economic History.

The economic development of England from the tenth century to the present time and the most important experiences of the United States are studied.

Three hours weekly, first half-year. Professor Barnett.

(*b*) Elements of Economics.

Particular attention is given to the theory of distribution and its application to leading economic problems.

Three hours weekly, second half-year. Professor Barnett.

2. (*a*) Finance.

The theory and practice of finance are considered, with particular reference to problems of taxation as presented in the experience of the United States.

Three hours weekly, first half-year. Professor Hollander.

(*b*) Money and Banking.

The principles of monetary science are taught with reference to practical conditions in modern systems of currency, banking, and credit.

Three hours weekly, second half-year. Professor Barnett.

3. (*a*) Statistical Methods.

After a preliminary study of the value and place of statistics as an instrument of investigation, attention is directed to the chief methods used in statistical inquiry.

Three hours weekly, first half-year. Professor Barnett.

(*b*) Economic Theory.

Critical study is made of recent economic theories.

Three hours weekly, second half-year. Professor Hollander.

Note.—Undergraduate Course 2 is open only to such students as have completed Course 1; and, save under exceptional circumstances, Course 3 only to students who have completed 1 and 2.

POLITICAL SCIENCE

GRADUATE COURSES

The graduate work in Political Science has for its aim the preparation of advanced students for professional and original work in the fields of Constitutional Law, International Law and Diplomacy, and Political Philosophy. It seeks also to supply the necessary training for those desiring to enter the higher branches of the public service, and to furnish a broad and philosophical equipment to those who expect later to pursue the study and practice of the law.

Seminary

In addition to the Historical and Political Science Association, at which the students of the departments of History, Economics, and Political Science meet jointly for the presentation of papers by the instructors and by invited speakers, a fortnightly Seminary is conducted by Professor Willoughby, at which reports upon special subjects are read by the students and discussed.

Journal Club

A fortnightly meeting of the advanced students, under the direction of Professor Willoughby, is held for the discussion of current political literature—books and periodicals.

Lectures

The lectures are so arranged as to give three or more years of continuous instruction, covering the following subjects: The Theory of the State (being a general introduction to the study of Constitutional and International Law), Foreign Constitutional Law, United States

Constitutional Law, the Legal Aspects of Economic and Industrial Problems, the History of Political Theories and of Political Literature, and Historical Jurisprudence.

During the year 1911-12 the following courses will be given:

1. United States Constitutional Law. Professor WILLOUGHBY.

Three hours weekly, first half-year.

This course is in continuation and completion of the course given in 1910-11.

2. Introduction to the Study of Public Law; Principles of Political Philosophy. Professor WILLOUGHBY.

Three hours weekly, second half-year.

3. Political Theories and Political Literature in France in the Eighteenth and Nineteenth Centuries. Professor WILLOUGHBY.

One hour weekly, throughout the year.

4. Principles of International Law. Dr. J. B. SCOTT.

One hour weekly, throughout the year.

This course is a continuation of the one given in 1910-11.

5. The Principles and Practice of Diplomacy. Dr. J. B. SCOTT.

One hour weekly, throughout the year.

Undergraduate instruction in Political Science is given in the departments of History and Economics.

PHILOSOPHY, PSYCHOLOGY, AND EDUCATION

GRADUATE COURSES

The graduate work of the department takes different directions according as the chief interest of the student lies in the field of Philosophy, in Experimental and Comparative Psychology, or in Education.

In Philosophy, opportunity is offered for specialization in systematic philosophy, in logic and the philosophy of natural science, in the history of philosophy, or in ethics. In Psychology, the student may center his study upon human psychology, animal behavior, or psychiatry. In Education, the work recognizes the bearing of the historical and theoretical material upon present practical problems.

The student's program during the first and second years is adapted, so far as possible, to his individual needs and his purposes as teacher or investigator. In the third year, the student concentrates upon the topic of his dissertation.

Graduate Conference.

Meetings of all the instructors and graduate students are held as occasion may arise for the presentation of the results of work of members of the department, for hearing papers by invited guests, and for the informal discussion of important recent publications.

Philosophy

1. Seminary.

Individual work to be separately arranged for each student under the direction of Professor LOVEJOY. The work will consist of required reading, methodical analysis of problems, the presentation of a connected series of fortnightly or monthly papers, and frequent conferences with the instructor.

2. British Empiricism.

Professor GRIFFIN. *One hour a week, through the year.*

3. Post-Kantian Philosophy: Fichte and Schelling.

Professor BUCHNER. *One hour a week, through the year.*

4. Contemporary Tendencies in Metaphysics and Epistemology.

Professor Lovejoy. *Two hours a week, through the year.*

5. English Ethics from Hobbes to Price.

Professor Griffin. *One hour a week, through the year.*

6. The Ethical Theory of Distribution.

Professor Lovejoy. *One hour a week, through the year.*

Psychology

7. Introduction to Experimental Psychology.

Associate Professor Dunlap. *Lectures and laboratory exercises, Monday, Tuesday, and Wednesday,* 2 *to* 4 *p. m.*

8. Experimental Psychology (Research Course).

Professor Watson and Associate Professor Dunlap. *Two hours a week, through the year.*

9. Introduction to Comparative Psychology.

Professor Watson. *Lectures and laboratory exercises. Two hours a week, through the year.*

10. Comparative Psychology (Research Course).

Professor Watson. *Two hours a week, through the year.*

11. Advanced General Psychology.

Professor Watson. *Two hours a week, through the year.*

12. Psychological Journal Club.

One hour a week, through the year.

(For related courses, see under Biology in this Circular, and under Psychiatry in the Catalogue of the Faculty of Medicine.)

Education

13. Seminary.

Professor Buchner. *Two hours a week, through the year.*

The work of the year will be a study of the history and principles of secondary education.

14. Educational Psychology.

Professor Buchner. *One hour a week, through the year.*

In this course, which is a continuation of the one given in 1910-11, attention will be paid to the psychology of school activities.

UNDERGRADUATE COURSES

1. *a.* Deductive and Inductive Logic.

Creighton's Introductory Logic is at present used as a text-book, with references to the works of Jevons, Mill, Bain, Keynes, and other writers.

Professor Griffin. *Three hours weekly, until Christmas.*

b. Psychology.

Text-books, liable to change from year to year, are made the basis of instruction, but the subject is presented largely through informal lectures and discussions, and by means of passages in various authors assigned for reading. A series of lectures and demonstrations on physiological and experimental psychology is included in the course. One essay on an assigned subject is required from each member of the class.

Professor Watson. *Four hours weekly, January to April.*

c. Ethics.

The subject is taught by lectures, recitations from a text-book—Mackenzie's Manual of Ethics being used at present—and references to the works of the most important writers.

Professor Griffin. *Three hours weekly, after April* 1.

2. Outlines of the History of Philosophy.

Rogers's Student's History of Philosophy, Weber's History of Philosophy, and other works of reference, are used as the basis of lectures, discussions, and recitations.

Professor Griffin. *Two hours weekly, through the year; a third hour, for readings from the works of leading philosophers, may be taken.*

All candidates for the degree of Bachelor of Arts are required to follow Course 1 during the last year of residence.

DRAWING

1. Freehand Drawing.

The instruction aims to teach students the principles of seeing and rendering correctly any object or group of objects.

The practical value of this training is found in the illustration of lectures and laboratory work in biology and medicine.

Students looking forward to teaching as a profession will find the ability to clearly demonstrate their lectures by means of drawings to be of great service.

Three hours weekly, through the year. Mr. Whiteman.

2. Descriptive Geometry and Mechanical Drawing.

This course is offered to students who intend studying architecture or engineering. The work consists of lectures in the theory, and of the practical application in working problems. The study of linear perspective and the perspective of shadows, together with orthographic and isometric projections, is taken up later in the course.

Three hours weekly, through the year. Mr. WHITEMAN.

PUBLIC SPEAKING AND DEBATE

A course in reading and platform speaking is required of undergraduate students in their second year. For the sake of convenience in instruction, the class is divided into several small sections, to each of which is devoted one hour a week. A course in debating, which involves the study of parliamentary law, the collection and arrangement of material, and frequent practice in debate under the direction of an instructor, is assigned to students in their third year. The work of the two years is counted as a half-course. During the fourth year opportunity for a more detailed study of the art of debate and for practice in argumentative composition is open to those who desire it. Prize contests in public speaking and in debate are held annually, and one intercollegiate debate is, as a rule, undertaken each year.

PHYSICAL TRAINING AND ATHLETICS

The authorities of the university, recognizing the importance of systematic physical exercise under suitable advice, have placed the gymnasium in charge of Dr. Ronald T. Abercrombie, and have put the work of this department on a parity with the work done in the regular courses of study.

A careful physical and medical examination is made of each undergraduate, and such exercises are prescribed as are best suited to his needs. During his first year of residence, he is required to follow the prescribed gymnasium course, which includes also his attendance on a course in hygiene. Regular class instruction is given every afternoon from five to six o'clock. The use of the gymnasium is optional in the case of graduate students; it is offered to all members of the university upon payment of the ordinary locker fee.

The gymnasium—127 feet long by 35 feet wide—is provided with convenient lockers, baths, etc., as well as with the newest forms of apparatus. Adjoining the gymnasium proper is a "cage"—an enclosed and covered space for practice in running and in athletic sports—127 feet long, 66 feet wide, and 30 feet high.

"Hopkins Field," the athletic ground at Homewood, is now in use by the students. In its construction special attention was paid to the problem of drainage, and in this respect the field is well-nigh perfect. It is enclosed by one of the best quarter-mile cinder tracks in the country, with a 220-yard "straightaway." A club-house provides dressing rooms, lockers, and shower baths. Two stands built of ferro-concrete and accommodating each about fifteen hundred spectators have been erected. Immediately adjoining Hopkins Field are well-equipped tennis courts.

In order to prevent ill-advised participation in outdoor sports, and to guard against over-indulgence in training, the athletic teams of the university are under the control of the director of the gymnasium. No student is allowed to become a member of a team unless his physical condition is satisfactory and his "strength test" up to the prescribed standard; and no student is allowed to be a member of, or a candidate for, an athletic team, who is seriously deficient in his studies.

COLLEGE COURSES FOR TEACHERS

OFFERED BY

THE JOHNS HOPKINS UNIVERSITY

AND

GOUCHER COLLEGE

1911-12

COMMITTEE IN CHARGE

EDWARD F. BUCHNER, *Chairman,* Professor of Education and Philosophy.

JOHN B. VAN METER, Professor of Bible in English, Goucher College.

HARRY L. WILSON, Professor of Roman Archæology and Epigraphy.

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up and returned to the Chairman of the Committee, on or before September 23, 1911.

Professor Buchner may be found in McCoy Hall, first floor, daily from September 23 to October 7 (3-5 p. m., Monday to Friday, 10 a. m., Saturday). Regular consultation hours, 11 a. m., daily, and 5 p. m., Tuesdays.

INSTRUCTORS IN THE COLLEGE COURSES FOR TEACHERS

Ira Remsen, LL. D., *President*

Henry Wood, Ph. D., Professor of German.	*German*
Wilfred P. Mustard, Ph. D., Collegiate Professor of Latin.	*Latin*
Edward F. Buchner, Ph. D., Professor of Education and Philosophy.	*Education*
Murray P. Brush, Ph. D., Associate Professor of French.	*French*
J. Elliott Gilpin, Ph. D., Associate Professor of Chemistry.	*Chemistry*
B. Franklin Lovelace, Ph. D., Associate Professor of Chemistry.	*Chemistry*
John C. French, Ph. D., Associate in English.	*English*
Robert Bruce Roulston, Ph. D., Associate in German.	*German*
Charles W. Hodell, Ph. D., Professor of English Language and Literature in Goucher College.	*English*
Clara Latimer Bacon, Ph. D., Associate Professor of Mathematics in Goucher College.	*Mathematics*
Annie Heloise Abel, Ph. D., Associate Professor of History in Goucher College.	*History*

COLLEGE COURSES FOR TEACHERS

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work has been done without any reference to credit toward an academic degree.

Goucher College has also offered without reference to academic credit special courses of instruction and lectures open to teachers of Baltimore in an effort to serve a larger constituency than its regular students.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with Goucher College, has offered since 1909 courses of instruction to teachers whose vocation prevents their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1911-1912. It is the primary aim of these courses to provide the teachers in our public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in college classes. In order to give further encouragement to teachers in service to carry on extended systematic study, this plan of college courses for teachers also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degree of Bachelor of Arts.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. These courses will be open to men and women alike, and will be carried on independently of the regular collegiate instruction of the institutions. In the case of women who may desire to become candidates for the baccalaureate degree, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the Collegiate Department of the Johns Hopkins University in the case of those men who desire to proceed to the baccalaureate degree. Total credits of sixty units or hours are required for graduation in each institution.

The instruction will be conducted as far as possible at the Johns Hopkins University. In some instances, classes and laboratory exercises may be held at Goucher College.

ADMISSION

The requirements for admission to the College Courses for Teachers conform in general to the requirements for matriculation fixed by the Johns Hopkins University in its Collegiate Department, and to the entrance requirements prescribed by Goucher College. The preparatory training desirable for the successful pursuit of these

courses is that represented by the completion of a standard four-year high school course.

Applicants may be admitted to these courses by either of the following means:

1. Passing an examination.
2. Presenting certificates:
   (*a*) Of the College Entrance Examination Board.
   (*b*) Of public and private high schools and normal schools approved by the Committee in charge.
   (*c*) Of work completed in other colleges.

In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course.

Applications for admission to these courses must be presented to the Committee in charge of College Courses for Teachers.

ADMISSION WITH REFERENCE TO A DEGREE

Those applicants who wish to become candidates for the degree of Bachelor of Arts in the Johns Hopkins University are referred to the circular descriptive of "The Collegiate Instruction of the Johns Hopkins University," 1911, pp. 50-58, for a detailed statement of the requirements for matriculation. This circular may be had by addressing the Registrar.

Those applicants who desire to become candidates for the same degree in Goucher College, are referred to the "Program of the Woman's College of Baltimore," 1911, pp. 18-31, for a detailed statement of the corresponding requirements in this institution. This circular may be had by addressing the Registrar.

As a final requirement before the degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree of Bachelor of Arts is conferred by the Johns Hopkins University upon men only.

ADMISSION TO ADVANCED STANDING

The courses offered for 1911-1912 represent for the most part the work usually required in the first and second college years. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of these, an effort will be made to arrange for such instruction. In considering applications for advanced standing the Committee will be guided by the regulations in force, in such cases, in the two institutions.

EXPENSES

The charge for instruction will be at practically the same rate per hour as for the undergraduate courses in the Johns Hopkins University and Goucher College, namely:

Ten Dollars per year for each hour per week. Each course will continue throughout the academic year. Where laboratory fees are required they are additional. Three hours of laboratory work will be charged as one hour of recitation or lecture.

Fees are payable in semi-annual instalments, in October and February, at the office of the Treasurer of the Johns Hopkins University, 712 North Howard Street. Before payment of fees can be made, applicants must receive from the Committee in charge a card stating the courses to be taken.

SESSION

The College Courses for Teachers will open on Tuesday, October 10, 1911, and close on Saturday, June 1, 1912.

Each course will include instruction for thirty weeks. Class-room and laboratory exercises will be given in the afternoon from Tuesday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual college recesses at Thanksgiving, Christmas, and Easter.

Applications for admission are to be filed with the Chairman of the Committee in charge of the College Courses for Teachers, the Johns Hopkins University, on or before September 23, 1911.

SCHEDULE OF HOURS

(Subject to minor changes at the opening of the courses in order to meet the convenience of students.)

	4.10—5.00 P. M.	5.10—6.00 P. M.
Tuesday	Education (Buchner) French (Brush) German (Wood and Roulston) Latin (Mustard)	Chemistry (Lovelace) English Composition (French) French 2 (Brush) Algebra, Geometry (Bacon)
Wednesday	History (Abel)	Calculus (Bacon) English Literature (Hodell)
Thursday	French (Brush) German (Wood and Roulston) Latin (Mustard)	Chemistry (Lovelace) English Composition (French) French 2 (Brush) Algebra, Geometry (Bacon)
Friday	Education (Buchner) History (Abel)	Calculus (Bacon)
	9.00—10.00 A. M.	10.00 A. M.
Saturday	French (Brush) Latin (Mustard) Algebra, Geometry (Bacon)	Chemistry (Gilpin) (10—1) English Literature (Hodell) (10—11)

THE COURSES OF INSTRUCTION

Any course for which there are fewer than ten applicants may be withdrawn.

The exact amount of credit towards the degree of Bachelor of Arts, which will be allowed for successful completion of each of the courses mentioned below, can be determined definitely only at the end of the year.

Chemistry

No previous knowledge of chemistry is required. The class-room work will comprise lectures illustrated by experiments and will be supplemented by occasional condensed reviews written at home. The work is based on Remsen's Chemistry (Briefer Course) and will cover the field of inorganic chemistry as far as possible. In the laboratory students will repeat experiments chosen from those performed in the class-room, and will make simple inorganic preparations. Two hours class-work, three hours laboratory work weekly.

A laboratory fee of $5.00 will be charged to cover the cost of chemicals. This fee does not include apparatus, which is loaned with charge for breakage only. (The minimum expense for breakage has been $1.63; the average $3.00.)

Associate Professors GILPIN and LOVELACE. Tuesday and Thursday, 5.10 p. m.; Saturday, 10 a. m. to 1 p. m.

Education

This introductory course on the principles of education will undertake a study of the processes of education with a view to understanding the work of the school and the various factors in individual development. The work is based on Henderson's Textbook in the Principles of Education.

Professor BUCHNER. Tuesday and Friday, 4.10 p. m.

Advanced English Composition

This course will consist of the study and practice of the forms of prose discourse as exemplified in the works of selected authors, and will afford opportunity for exercises in oral as well as in written English. It will presuppose some previous work in English Composition of collegiate grade. For the sake of effectiveness in the conduct of the class, the enrollment will be limited to fifteen.

Dr. French. Tuesday and Thursday, 5.10 p. m.

English Literature

The plays of Shakespeare, as related to the development of his mind and art; the history of the Pre-Shakespearian and Shakespearian drama; discussion of the salient features of dramatic art.

Professor Hodell. Wednesday, 5.10 p. m., and Saturday, 10.00 a. m.

French

In French, one of two alternative courses will be offered:

1. A course in the elements of French adapted to those who wish to begin the study of French or who have had only a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation and composition. The following text books will be used: Fraser and Squair, *French Grammar, Part I;* Labiche, *La Grammaire;* Gréville, *Dosia;* About, *La Mère de la Marquise;* Sandeau, *Mlle. de la Seiglière.*

Associate Professor Brush. Tuesday and Thursday, 4.10 p. m., Saturday, 9.00 a. m.

2. A course in advanced French on the development of the novel, together with weekly exercises in syntax and composition.

Associate Professor Brush. Tuesday and Thursday, 5.10 p. m.

German

A course in German, two hours weekly through the year, embracing the two classical periods of German literature will be offered.

During the first half-year, the elements of Middle High German will be studied, after which the poems of Walther von der Vogelweide will be read in class.

Professor Wood. Tuesday and Thursday, 4.10 p. m.

Candidates are requested to procure Hermann Paul, *Mittelhochdeutsche Grammatik,* 7th Auflage, Halle, 1908; *Walther von der Vogelweide,* hrsg. W. Wilmanns [Germanistische Handbibliothek, hrsg. Julius Zacher I.], Halle, 1883.

During the second half-year, the later classical period (18th and 19th century, centering in Goethe and Schiller), will be passed in review, in readings and class work.

Dr. Roulston. Tuesday and Thursday, 4.10 p. m.

History

In History, one of two alternative courses will be offered, each fundamental in its nature and adapted to the particular needs of those electing it:

1. A course in American History that shall include Colonial History and United States National History to 1876.

2. A course in Mediaeval History that shall confine itself to characteristic institutions and to great movements. Considerable collateral reading will be required and periodical work with sources made obligatory. A syllabus will be used, but no special text-book.

Associate Professor Abel. Wednesday and Friday, 4.10 p. m.

Latin

In Latin, one of two alternative courses will be offered:

1. A course similar to undergraduate Latin 1: Livy (selections); Terence (one play); Vergil, *Bucolics;* Catullus (selections); Prose Composition; Private Reading (Cicero, *Cato Maior;* Vergil, *Aeneid,* bk. VIII).

Professor Mustard. Tuesday and Thursday, 4.10 p. m., Saturday, 9.00 a. m.

2. A course similar to undergraduate Latin II: Tacitus, *Annals* (selections); Pliny's *Letters* (selections); Horace *Odes* and *Epodes;* Private Reading (Tacitus, *Germania;* Horace, selected *Satires* and *Epistles*).

Professor Mustard. Tuesday and Thursday, 4.10 p. m.

Mathematics

In Mathematics, one of two alternative courses will be offered:

1. Algebra and Analytic Geometry.

The first part of the year will be devoted to a study of special topics in Algebra including theory of exponents, theory of logarithms, simultaneous equations, binomial theorem, elements of the theory of equations, and elements of the theory of determinants.

The second part of the year will be devoted to an introductory course in Plane Analytic Geometry including a discussion of the right line and of the circle and other conics as represented by their equations both Cartesian and Polar.

Pre-requisites: Elementary Algebra, Plane Geometry, Plane Trigonometry.

Associate Professor Bacon. Tuesday and Thursday, 5.10 p. m., Saturday, 9.00 a. m.

2. Calculus.—An introductory course in Differential and Integral Calculus.

Pre-requisite: Course 1.

Associate Professor Bacon. Wednesday and Friday, 5.10 p. m.

LECTURES ON SOLAR AND TERRESTRIAL PHYSICS

A course of lectures will be given between October 16 and 28, 1911, in the Physical Laboratory, by Arthur Schuster, F. R. S., Honorary Professor of Physics in the University of Manchester.

The object of the lectures will be to discuss the cosmical applications of recent advances in physics, to explain the methods of examining correlations between solar and terrestrial phenomena, and to specify the problems of solar and terrestrial physics which seem to call for special investigation.

The following headings are intended to illustrate the general scope of the lectures, but do not necessarily indicate the order in which the subjects will be taken:

1. *Preliminary Considerations.* The ponderomotive forces concerned (gravitation, radiation pressure, electrostatic forces). The laws of radiation (adiabatic, isothermal and radiostatic equilibrium).

2. *The Sun.* The interior of the sun, conditions at the surface due to ejection of electrons. Spectroscopic phenomena and their interpretation. The laws of solar rotation. The sun's corona. Sun-spots and their periodicity.

3. *Interplanetary Space.* Effects of small quantities of matter on thermal and electric conductivity.

4. *The Earth.* Our knowledge of its interior constitution. The age of the earth. The principal phenomena of terrestrial magnetism and atmospheric electricity.

5. *The Earth's Atmosphere,*—more especially with regard to its condition near its upper limit.

6. *General methods of investigating periodicities.* Brückner's "35-year meteorological cycle" shown to be non-existent. Lunar effects. Connection between sunspots and terrestrial phenomena.

1912 No. 6

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS.

THE
JOHNS HOPKINS
UNIVERSITY CIRCULAR

COLLEGE COURSES FOR TEACHERS

1912-1913

Baltimore, Maryland
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Issued Monthly from October to July
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CALENDAR, 1912-1913

College Courses for Teachers begin Tuesday, October 8, 1912.

Thanksgiving Day falls on Thursday, November 28, 1912.

The Christmas Recess begins Monday morning, December 23, 1912.

Exercises will be resumed on Thursday afternoon, January 2, 1913.

Commemoration Day falls on Saturday, February 22, 1913.

The Spring Recess begins Thursday morning, March 20, and closes Wednesday evening, March 26, 1913.

College Courses for Teachers close Saturday, May 31, 1913.

COLLEGE COURSES FOR TEACHERS

OFFERED BY

THE JOHNS HOPKINS UNIVERSITY

AND

GOUCHER COLLEGE

1912-1913

BALTIMORE
The Johns Hopkins Press
1912

COMMITTEE IN CHARGE OF THE COLLEGE COURSES FOR TEACHERS

EDWARD F. BUCHNER, *Chairman*, Professor of Education and Philosophy.

JOHN B. VAN METER, Professor of Bible in English, Goucher College.

HARRY L. WILSON, Professor of Roman Archæology and Epigraphy.

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up and returned to the Chairman of the Committee, on or before September 21, 1912.

Professor Buchner may be found in McCoy Hall, first floor, daily from September 21 to October 5 (3-5 p. m., Monday to Friday, 10 a. m., Saturday). Regular consultation hours, 11 a. m., daily, and 5 p. m., Tuesdays.

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Ira Remsen, LL. D., *President*

Henry Wood, Ph. D., Professor of German.	*German*
Wilfred P. Mustard, Ph. D., Collegiate Professor of Latin.	*Latin*
Edward F. Buchner, Ph. D., Professor of Education and Philosophy.	*Education*
Murray P. Brush, Ph. D., Collegiate Professor of French.	*French*
J. Elliott Gilpin, Ph. D., Associate Professor of Chemistry.	*Chemistry*
Knight Dunlap, Ph. D., Associate Professor of Psychology.	*Psychology*
B. Franklin Lovelace, Ph. D., Associate Professor of Chemistry.	*Chemistry*
John C. French, Ph. D., Associate in English.	*English*
Robert Bruce Roulston, Ph. D., Associate in German.	*German*
Charles A. Myers, Ph. D., Instructor in English.	*English*
Clara Latimer Bacon, Ph. D., Associate Professor of Mathematics in Goucher College.	*Mathematics*
Annie Heloise Abel, Ph. D., Associate Professor of History in Goucher College.	*History*
Robert M. Gay, A. M., Associate Professor of English in Goucher College.	*English*

COLLEGE COURSES FOR TEACHERS

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work has been done without any reference to credit toward an academic degree.

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In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with Goucher College, has offered since 1909 courses of instruction to teachers whose vocation prevents their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1912-1913. It is the primary aim of these courses to provide the teachers in our public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in college classes. In order to give further encouragement to teachers in service to carry on extended systematic study, this plan of college courses for teachers also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degree of Bachelor of Arts.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. These courses will be open to men and women alike, and will be carried on independently of the regular collegiate instruction of the institutions. In the case of women who may desire to become candidates for the baccalaureate degree, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the Collegiate Department of the Johns Hopkins University in the case of those men who desire to proceed to the baccalaureate degree. Total credits of sixty units or hours are required for graduation in each institution.

The instruction will be conducted as far as possible at the Johns Hopkins University. In some instances, classes and laboratory exercises may be held at Goucher College.

ADMISSION

The requirements for admission to the College Courses for Teachers conform in general to the requirements for matriculation fixed by the Johns Hopkins University in its Collegiate Department, and to the entrance requirements prescribed by Goucher College. The preparatory training desirable for the successful pursuit of these

courses is that represented by the completion of a standard four-year high school course.

Applicants may be admitted to these courses by either of the following means:

1. Passing an examination.
2. Presenting certificates:
    - (*a*) Of the College Entrance Examination Board.
    - (*b*) Of public and private high schools and normal schools approved by the Committee in charge.
    - (*c*) Of work completed in other colleges.

In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course.

Applications for admission to these courses must be presented to the Committee in charge of College Courses for Teachers.

ADMISSION WITH REFERENCE TO A DEGREE

Those applicants who wish to become candidates for the degree of Bachelor of Arts in the Johns Hopkins University are referred to the circular descriptive of "The College of Arts and Sciences of the Johns Hopkins University," 1912, pp. 51-59, for a detailed statement of the requirements for matriculation. This circular may be had by addressing the Registrar.

Those applicants who desire to become candidates for the same degree in Goucher College, are referred to the "Program of Goucher College," 1912, pp. 18-31, for a detailed statement of the corresponding requirements in this institution. This circular may be had by addressing the Registrar.

As a final requirement before the degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree of Bachelor of Arts is conferred by the Johns Hopkins University upon men only.

ADMISSION TO ADVANCED STANDING

The courses offered for 1912-1913 represent for the most part the work usually required in the first and second college years. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of these, an effort will be made to arrange for such instruction. In considering applications for advanced standing the Committee will be guided by the regulations in force, in such cases, in the two institutions.

EXPENSES

The charge for instruction will be at practically the same rate per hour as for the undergraduate courses in the Johns Hopkins University and Goucher College, namely:

Ten Dollars per year for each hour per week. Each course will continue throughout the academic year. Where laboratory fees are required they are additional. Three hours of laboratory work will be charged as one hour of recitation or lecture.

Fees are payable in semi-annual instalments, in October and February, at the office of the Treasurer of the Johns Hopkins University, 712 North Howard Street. Before payment of fees can be made, applicants must receive from the Committee in charge a card stating the courses to be taken.

SESSION

The College Courses for Teachers will open on Tuesday, October 8, 1912, and close on Saturday, May 31, 1913. Each course will include instruction for thirty weeks. Class-room and laboratory exercises will be given in the afternoon from Tuesday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual college recesses at Thanksgiving, Christmas, and Easter.

Applications for admission are to be filed with the Chairman of the Committee in charge of the College Courses for Teachers, the Johns Hopkins University, on or before September 21, 1912.

SCHEDULE OF HOURS

(Subject to minor changes at the opening of the courses in order to meet the convenience of students.)

	4.10—5.00 P. M.	5.10—6.00 P. M.
Tuesday	Education (Buchner) French (Brush) German 1 (Roulston) German 2 (Wood) Latin (Mustard)	Chemistry (Lovelace) English Composition (Myers) French (Brush) Algebra, Geometry (Bacon) American Literature (French)
Wednesday	Psychology (Dunlap) History (Abel)	English Literature (Gay)
Thursday	French (Brush) German 1 (Roulston) German 2 (Wood) Latin (Mustard)	Chemistry (Lovelace) English Composition (Myers) French (Brush) Algebra, Geometry (Bacon) American Literature (French)
Friday	Education (Buchner) History (Abel)	English Literature (Gay) (10–11)
	9.00—10.00 A. M.	10.00 A. M.
Saturday	Psychology (Dunlap) (9—12) French (Brush) Latin (Mustard) Algebra, Geometry (Bacon) German 1 (Roulston)	Chemistry (Gilpin) (10—1)

THE COURSES OF INSTRUCTION

Any course for which there are fewer than ten applicants may be withdrawn.

The exact amount of credit towards the degree of Bachelor of Arts, which will be allowed for successful completion of each of the courses mentioned below, can be determined definitely only at the end of the year.

Chemistry

No previous knowledge of chemistry is required. The class-room work will comprise lectures illustrated by experiments and will be supplemented by occasional condensed reviews written at home. The work is based on Remsen's Chemistry (Briefer Course) and will cover the field of inorganic chemistry as far as possible. In the laboratory students will repeat experiments chosen from those performed in the class-room, and will make simple inorganic preparations. Two hours class-work, three hours laboratory work weekly.

A laboratory fee of $5.00 will be charged to cover the cost of chemicals. This fee does not include apparatus, which is loaned with charge for breakage only. (The minimum expense for breakage has been $1.63; the average $3.00.)

Associate Professors Gilpin and Lovelace. Tuesday and Thursday, 5.10 p. m.; Saturday, 10 a. m. to 1 p. m.

Education

The course offered will present in outline the history of education. It will trace the development of those ideas, practices, and institutions of the past which have been most effective in determining the essential features and problems of education in the present. The work is based on Monroe's Textbook in the History of Education.

Professor Buchner. Tuesday and Friday, 4.10 p. m.

English

1. English Composition.

This course will include the theory of diction, structure, and the forms of prose composition, with some critical study of selected prose writers. Weekly themes will be required; these will be returned with written criticisms.

Dr. Myers. Tuesday and Thursday, 5.10 p. m.

2. English Literature.

A study of the literature of the reigns of Elizabeth, James I, and Charles I (1550-1700.) After a survey of the important literary types and their origins, a study will follow of the greater writers of prose and poetry. The course will embrace the reading and discussion of the essay, lyric, ballad, sonnet, novel and romance, criticism, and other forms. The work of Sidney, Bacon, Milton, Herrick, Bunyan, Cowley, and Dryden will be noticed at length.

Associate Professor Gay. Wednesday and Friday, 5.10 p. m.

3. American Literature and Literary Criticism.

This course will combine the study of American literature with practice in the writing of literary criticism. The literature will be studied primarily by types and periods, and American critical writings will serve as the subject-matter of a study of the principles of literary criticism. The writing of themes and essays based upon selected works, including the works of contemporary authors, will be an important part of the course. The enrollment in this class will be limited to twenty.

Dr. French. Tuesday and Thursday, 5.10 p. m.

French

In French, one of two alternative courses will be offered:

1. A course (of two, or of three, hours) in the elements of French adapted to those who wish to begin the study of French or who have had only a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation and composition. The following text books will be used: Fraser and Squair, *French Grammar, Part I;* Labiche, *La Grammaire;* Gréville, *Dosia;* About, *La Mère de la Marquise;* Sandeau, *Mlle. de la Seiglière.*

Collegiate Professor Brush. Tuesday and Thursday, 4.10 p. m. (Saturday, 9.00 a. m.)

2. A course in advanced French on the development of the drama, together with weekly exercises in syntax and composition.

Collegiate Professor Brush. Tuesday and Thursday, 5.10 p. m.

German

In German, two courses will be offered:

1. A course similar to undergraduate German 1, consisting of modern prose readings, C. F. Meyer, von Saar, Fulda, Kellar, Sudermann, two hours weekly, and prose composition, one hour weekly.

Dr. Roulston. Tuesday and Thursday, 4.10 p. m., Saturday, 9.00 a. m.

(In case of a sufficient demand, a class in the elements of German will be organized.)

2. A course for candidates who are able to read and write German with facility and who wish to pursue the subject further, will give opportunity to study Goethe's *Lyrical Poems.* Written themes in German will be required on subjects suggested by the material read in class. Two hours weekly.

Professor Wood. Tuesday and Thursday, 4.10 p. m.

History

In History, one of two alternative courses will be offered, each fundamental in its nature and adapted to the particular needs of those electing it.

1. A course in American History, covering the period of the Civil War and Reconstruction.

2. A course in Mediaeval History that shall confine itself to characteristic institutions and to great movements. Considerable collateral reading will be required and occasional work with sources made obligatory. A syllabus will be used, but no special text-book.

Associate Professor Abel. Wednesday and Friday, 4.10 p. m.

Latin

In Latin, one of two alternative courses will be offered:

1. A course similar to undergraduate Latin 1; Livy (selections); Terence (one play); Vergil, *Bucolics;* Catullus (selections); Prose Composition; Private Reading (Cicero, *Cato Maior;* Vergil, *Aeneid,* bk. VIII).

Collegiate Professor Mustard. Tuesday and Thursday, 4.10 p. m., Saturday, 9.00 a. m.

2. A course similar to undergraduate Latin III: Lucretius (selections); Vergil, *Georgics;* Horace, *Ars Poetica.* Private Reading: Catullus (selections); Horace, *Epistles* (selections).

Collegiate Professor Mustard. Tuesday and Thursday, 4.10 p. m.

Mathematics

The first part of the year will be devoted to a study of special topics in Algebra including theory of exponents, theory of logarithms, simultaneous equations, binomial theorem, elements of the theory of equations, and elements of the theory of determinants.

The second part of the year will be devoted to an introductory course in Plane Analytic Geometry including a discussion of the right line and of the circle and other conics as represented by their equations both Cartesian and Polar.

Pre-requisites: Elementary Algebra, Plane Geometry, Plane Trigonometry.

Associate Professor Bacon. Tuesday and Thursday, 5.10 p. m., Saturday, 9.00 a. m.

Psychology.

An introductory course in normal human psychology, with especial emphasis on the sensory and intellectual factors in perception and learning. Lectures, readings, and laboratory work.

Associate Professor Dunlap. Wednesday, 4.10 p. m., and Saturday, 9-12 a. m.

ATTENDANTS ON COLLEGE COURSES FOR TEACHERS, 1911-12

HATTIE JOSEPHINE ADAMS. Baltimore County. *Govans.*
Eastern High School, 1891. *Latin II; English Composition II.*

MARY CLARE ALBERT. Baltimore. 909 *N. Charles St.*
Höhere Mädchenschule, Braunschweig, 1904. *English Literature.*

FLORENCE IRENE ARNOLD. Baltimore. 2053 *Woodberry Av.*
Western High School, 1900. *English Literature.*

ROSA BALDWIN. Baltimore. 1615 *Linden Av.*
A. B., Goucher College, 1896. *English Composition II.*

HENRY HAROLD BALLARD. Baltimore. 1522 *Bolton St.*
A. B., Johns Hopkins University, 1888, and Ph. D., 1893. *Mathematics II.*

FLORENCE EILAU BAMBERGER. Baltimore. 212 *Laurens St.*
Western High School, 1895. *Education.*

EMILY OLIVER BARTON. Baltimore. 12 *E. 22nd St.*
Eastern High School. *English Composition II.*

CAROLINE FREDERICKA BECKER. Baltimore. 420 *N. Carey St.*
A. B., Cornell University, 1908. *German.*

CARRIE EVELYN BELL. Baltimore. 518 *Franklin Terr.*
Eastern High School, 1902. *English Composition I.*

ROZELL BERRYMAN. Baltimore. *Station D.*
M. D., Baltimore Medical College, 1893. *Education.*

CLARENCE F. BOLGIANO. Baltimore. 103 *S. Linwood Av.*
Baltimore Polytechnic Institute, 1908. *English Composition I.*

GERTRUDE LEE BOONE. Baltimore. 2922 *Parkwood Av.*
Western High School, 1894. *English Composition II.*

MARY ELIZABETH BOUNDS. Wicomico County. *Mardela Spgs.*
Maryland State Normal School, 1901. *English Composition I.*

REGINA MARIA BRADY. Baltimore. 3029 *Windsor Av.*
Maryland State Normal School, 1900. *English Composition II.*

BERTHA BRINKLEY. Baltimore. 114 *W. 22nd St.*
Bryn Mawr School, 1894. *French II.*

WILHELMINA HELENA BROEMER. Baltimore. 1704 *N. Collington Av.*
A. B., Goucher College, 1911. *German.*

AGNES EMILIE BUCHHOLZ. Baltimore. 748 *Reservoir St.*
Western High School. *German.*

EMILY LENORE BUCHHOLZ. Baltimore. 748 *Reservoir St.*
Western High School, 1902. *English Composition II.*

THEORA JULIETTE BUNNELL. Baltimore. 1813 *Linden Av.*
A. B., Goucher College, 1904. *History I.*

Mary Bunworth. Howard County. *Ellicott City.*
Maryland State Normal School, 1886. *French II; Latin II.*

Eleanor Robinson Byers. Baltimore. 3420 *Piedmont Av.*
Western High School, 1907. *History I.*

Margaret Blanche Carmine. Baltimore County. *Mt. Washington.*
A. B., Goucher College, 1901. *English Composition II.*

Margaret Winston Chase. Baltimore. 18 *E. 24th St.*
A. B., Goucher College, 1909. *Education.*

Edith R. Christian. Howard County. *Ellicott City.*
Maryland State Normal School, 1907. *English Literature.*

Martha Ross Clark. Baltimore. *The Montreal.*
English Composition I.

Raymond Kenmore Cole. Baltimore. 1723 *Thomas Av.*
Baltimore City College, 1908. *English Literature.*

Elsa Sophia Conradi. Baltimore. 415 *E. 22nd St.*
Höhere Töchter Schule (Berlin). *French II.*

Anna Cecilia Crady. Baltimore. 229 *N. Calhoun St.*
English Composition I.

Susan LePage Cronmiller. Baltimore County. *Laurel.*
Laurel High School, 1907. *French II.*

Dora Curtiss. Baltimore. 1524 *Park Av.*
English Composition I.

Ida Curtiss. Baltimore. 1524 *Park Av.*
Goucher College. *English Literature.*

Marian Curtiss. Baltimore. 1524 *Park Av.*
A. B., Goucher College, 1899. *French II.*

Octavia Amelia Dallam. Baltimore. 1318 *Bolton St.*
English Composition II; Latin II.

Helen Taylor Darby. Baltimore. 418 *N. Carey St.*
Western High School, 1906. *English Composition I.*

Augusta Fredericka Ditty. Baltimore. 220 *W. Lanvale St.*
Maryland State Normal School, 1888. *Education.*

Nanna Duke Dushane. Baltimore County. *Roland Park.*
French II.

Rose Erdman. Baltimore. *Harford Road.*
Eastern High School, 1888. *Education.*

Elisa Fluegel. Baltimore. 2562 *McCulloh St.*
Western High School, 1900. *English Literature.*

Josephine Virginia Fox. Baltimore. 444 *E. North Av.*
English Composition II.

Rosalie Elizabeth Gardner. Baltimore County. *Emory Grove.*
Western High School, 1893. *Latin II.*

Caroline Elsie Grote. Baltimore. 1045 *Myrtle Av.*
Western High School, 1909. *English Literature.*

Pauline Froelich Gruss. Baltimore. 2053 *Kennedy Av.*
Eastern High School, 1894. *History I.*

Anna Catherine Hahn. Baltimore. 1944 *W. Pratt St.*
Maryland State Normal School, 1899. *German.*

Mary Steel Harvey. Baltimore. 1105 *McCulloh St.*
French II.

Caroline Hayden. Baltimore. 409 *Robert St.*
Western High School, 1884. *English Composition II.*

Eleanor Cecilia Heavey. Howard County. *Ellicott City.*
Maryland State Normal School, 1890. *English Composition I.*

Hortense Herman. Baltimore. 2117 *Bolton St.*
Western High School, 1907. *Mathematics II.*

Katharine Hobach. Baltimore. 2212 *N. Charles St.*
A. B., Goucher College, 1898. *English Composition I.*

Mary Elizabeth Holland. Baltimore. 339 *Windsor Mill Rd.*
Maryland State Normal School, 1906. *English Literature.*

Susie Harman Hollstein. Baltimore. 2929 *N. Calvert St.*
Western High School, 1893. *History I.*

Martha Florence Horner. Baltimore. 1209 *N. Caroline St.*
Eastern High School, 1901. *English Composition I.*

Philena Martenet Hutton. Baltimore. 1821 *Madison Av.*
English Literature.

Bertha Estelle Johnson. Baltimore. 2408 *Madison Av.*
Western High School, 1898. *English Literature.*

Katharine Barton Jones. Baltimore County. *Roland Park.*
French II.

Fannie Kahn. Baltimore. 1434 *McCulloh St.*
Columbia University (Summer School). *German.*

Sara Augusta Kemp. Baltimore. 839 *Harlem Av*
English Composition II.

Elizabeth Broughton Kettell. Baltimore. 517 *N. Charles St*
English Composition I; English Literature.

Katharine Travers Kirwan. Baltimore. 1800 *Park Av*
Maryland State Normal School, 1904. *English Literature.*

Grace Amanda Kramer. Baltimore. 319 *E. 25th S*
Western High School, 1895. *English Composition II.*

Elizabeth Krieger. Baltimore. 408 *E. Chase S*
Eastern High School, 1892. *History I.*

Florence May Layman. Baltimore. 3724 *Park Heights A*
Maryland State Normal School, 1892. *Education.*

Nathan Lebovitz. Baltimore. 1011 *E. Lombard St.*
English Composition I; History I.

Delia Theresa Lester. Baltimore. 518 *E. 23rd St.*
History I.

Lula Wilhelmina Margaret Louis. Balt. 1725 *E. Lafayette Av.*
Western High School, 1900. *Education.*

Laurance Farnandis Magness Baltimore. 4029 *Greenmount Av.*
Baltimore Polytechnic Institute, 1907. *Education.*

Annie Lee Manning. Baltimore. 1339 *Mosher St.*
Western High School, 1903. *English Literature.*

Nellie Kinsella McDonnell. Baltimore. 601 *Lennox St.*
Western High School, 1907. *English Composition I.*

Emma Hazeltine Mechem. Baltimore. 1916 *Park Av.*
Western High School, 1886. *Education.*

Annie Gertrude Melvin. Baltimore. 711 *N. Fremont Av.*
Maryland State Normal School, 1899. *Latin II.*

Ethel Bailey Melvin. Baltimore. 711 *N. Fremont Av.*
Maryland State Normal School, 1903. *English Composition I.*

Rose Lee Meyer. Baltimore. 1122 *N. Charles St.*
Goucher College. *Education.*

Frederick William Miller. Baltimore. 417 *E. 22nd St.*
Baltimore City College, 1888. *Education.*

Rosa Allison Milliron. Baltimore. 1011 *W. Lafayette Av.*
Western High School, 1886. *Mathematics II.*

Mary Page Nelson. Baltimore. *Tudor Hall.*
French II.

Elizabeth Nickel. Baltimore. 2911 *Belmont Av.*
Chicago, Columbia and Harvard Universities (Summer Schools). *German.*

Rosalie Ogle. Baltimore. 716 *W. Lanvale St.*
Education.

Marion Oliver. Baltimore. 618 *John St.*
Eastern High School, 1888. *Education.*

Alice Barrington O'Reardon. Baltimore County. *Roland Park.*
English Composition II.

Olivia Oram Osborne. Baltimore County. *Arlington.*
Maryland State Normal School, 1898. *English Composition II.*

Hattie Ottenheimer. Baltimore. 2072 *Linden Av.*
Western High School, 1901. *English Literature.*

Evalena Caroline Oyeman. Baltimore County. *Gardenville.*
Maryland State Normal School, 1898. *English Literature.*

Minna Heldman Pagenstecher. Baltimore. 2016 *N. Calvert St.*
German.

Mary Alice Pierce. Baltimore. 302 *Laurens St.*
Maryland State Normal School. *Education.*

Edward Reisler. Baltimore. 3405 *Walbrook Av.*
A. M., Western Maryland College, 1880. *Education.*

Lula McDowell Richardson. Baltimore. 1102 *Brentwood Av.*
Eastern High School, 1908. *History I.*

Philip Lightfoot Robb. Baltimore. 124 *W. Lafayette Av.*
S. B., Maryland Agricultural College, 1898. *Education.*

Maud Stanard Ross. Baltimore. 1508 *McCulloh St.*
Eastern High School, 1884. *English Literature.*

Edna Rothholz. Baltimore. 2108 *Bolton St.*
Goucher College. *French II.*

William Deal Roycroft. Baltimore. 1017 *N. Broadway.*
Baltimore City College, 1904. *English Composition II.*

Helena C. Scharf. Baltimore. 914 *N. Stricker St.*
Western High School, 1902. *German.*

Nora Clementine Selby. Baltimore. 1020 *W. Lafayette Av.*
English Literature.

Emma Osanne Sharp. Baltimore. 2526 *N. Calvert St.*
Eastern High School, 1899. *German.*

Helen Sherbert. Baltimore. 1800 *N. Calvert St.*
Western High School, 1900. *History I; Latin II.*

Mary Sherwood. Baltimore. *The Arundel.*
A. B., Vassar College, 1883. *French II.*

Elizabeth Agnes Shields. Baltimore. 1600 *N. Gilmor St.*
English Composition I.

Eunice Sibley. Baltimore. 732 *Dolphin St.*
Maryland State Normal School. *History I.*

Evelina Carroll Simon. Baltimore. 210 *W. 25th St.*
A. B., Goucher College, 1898; A. M., Columbia University, 1899. *English Literature.*

Katharine Milligan Smith. Baltimore. 2233 *St. Paul St.*
English Literature.

Robert Andrew Smith. Baltimore. 1721 *E. Preston St.*
Baltimore City College, 1887. *Mathematics II.*

Marie Emilie Staib. Baltimore. 1621 *W. North Av.*
Western High School, 1896. *History I.*

Martha Blades Stephens. Baltimore. 2004 *Park Av.*
Smith and Swarthmore Colleges. *Mathematics II.*

Mabel Belmonte Sti Non. Baltimore. 1631 *E. Oliver St.*
Eastern High School, 1896. *English Composition II.*

Jacob Henry Strauss. Baltimore. 42 *S. Paca St.*
Johns Hopkins University, 1910-11. *History I.*

ELIZABETH BACON SUDLER. Baltimore. 1707 *St. Paul St.*
Maryland State Normal School, 1908. *English Literature.*

CARRIE MYERS SUMWALT. Baltimore. 121 *W. 24th St.*
Western High School, 1877. *Education.*

CLARA VIRGINIA TAPMAN. Baltimore County. *Catonsville.*
Western High School. *Education.*

LOUISE EMILIE THALWITZER Baltimore County. 3405 *Piedmont Av.*
Maryland State Normal School. *French II.*

JOSEPHINE TURNBULL. Baltimore. 2112 *E. Baltimore St.*
Eastern High School, 1898. *English Literature.*

KATHERINE THERESA VALENTINE. Baltimore. 216 *Myrtle Av.*
Maryland State Normal School, 1901. *English Composition I.*

SALLIE VANSANT. Baltimore. 1414 *Harlem Av.*
Eastern High School. *Education.*

FRANK T. WARRENFELTZ. Boonsboro. 1414 *Harlem Av.*
Myersville (Md.) High School. *English Composition I.*

ANNE ELIZA WELTY. Baltimore. 923 *N. Carrollton Av.*
Western High School. *Mathematics II.*

ELLEN CECILIA WILHELM. Baltimore. 2105 *Smallwood St.*
Maryland State Normal School, 1906. *English Literature.*

MARIE ELIZABETH WINAND. Baltimore County. *Roslyn.*
English Composition I.

ROSALIE WINDSOR. Baltimore County. 3939 *Old York Road.*
Education.

ADELE KEMPNER WOLMAN. Baltimore. 2101 *Brookfield Av.*
Western High School, 1907. *English Composition I.*

IVY VERDILLA YEAKEL. Baltimore. 26 *Augusta Av.*
Eastern High School, 1906. *English Composition II.*

HENRY ZOLLER, JR. Baltimore. 1323 *W. Lanvale St.*
LL. B., University of Maryland, 1911. *Education.*

(118)

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Communications should be addressed to
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14

1913 No. 6

THE

JOHNS HOPKINS UNIVERSITY CIRCULAR

COLLEGE COURSES FOR TEACHERS

1913-1914

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Illinois State Laboratory of Natural History

CALENDAR, 1913-1914

General Assembly, Saturday, 10 a. m., October 11 (Donovan Room).

College Courses for Teachers begin Tuesday, October 14, 1913.

Thanksgiving Day falls on Thursday, November 27, 1913.

The Christmas Recess begins Wednesday morning, December 24, 1913.

Exercises will be resumed on Tuesday afternoon, January 6, 1914.

Commemoration Day falls on Monday, February 23, 1914.

The Spring Recess begins Thursday morning, April 9, and closes Wednesday evening, April 15, 1914.

College Courses for Teachers close Saturday, May 30, 1914.

COLLEGE COURSES FOR TEACHERS

OFFERED BY

THE JOHNS HOPKINS UNIVERSITY

AND

GOUCHER COLLEGE

1913-1914

BALTIMORE
The Johns Hopkins Press
1913

COMMITTEE IN CHARGE OF THE COLLEGE COURSES FOR TEACHERS

Edward F. Buchner, *Chairman,* Professor of Education and Philosophy.

John B. Van Meter, Professor of Bible in English, Goucher College.

Henry Wood, Professor of German.

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up and returned to the Chairman of the Committee, on or before October 4, 1913.

Professor Buchner may be found in McCoy Hall, first floor, daily from September 27 to October 4 (3-5 p. m., Monday to Friday, 10 a. m., Saturday). Regular consultation hours, 11 a. m. and 5 p. m., Tuesdays.

INSTRUCTORS IN THE COLLEGE COURSES FOR TEACHERS

Henry Wood, Ph. D., Professor of German.	*German*
C. Carroll Marden, Ph. D., Professor of Spanish.	*Spanish*
Wilfred P. Mustard, Ph. D., Collegiate Professor of Latin.	*Latin*
Edward F. Buchner, Ph. D., Professor of Education and Philosophy.	*Education*
Murray P. Brush, Ph. D., Collegiate Professor of French.	*French*
James E. Shaw, Ph. D., Associate Professor of Italian.	*Italian*
J. Elliott Gilpin, Ph. D., Associate Professor of Chemistry.	*Chemistry*
Knight Dunlap, Ph. D., Associate Professor of Psychology.	*Psychology*
B. Franklin Lovelace, Ph. D., Associate Professor of Chemistry.	*Chemistry*
John C. French, Ph. D., Associate in English.	*English*
Robert B. Roulston, Ph. D., Associate in German.	*German*
Charles A. Myers, Ph. D., Associate in English.	*English*
Hans Froelicher, Ph. D., Professor of German Language and Literature and of Art Criticism in Goucher College.	*German*
Joseph S. Shefloe, Ph. D., Professor of Romanic Languages in Goucher College.	*French*
Clara L. Bacon, Ph. D., Associate Professor of Mathematics in Goucher College.	*Mathematics*
Annie H. Abel, Ph. D., Associate Professor of History in Goucher College.	*History*
Robert M. Gay, A. M., Associate Professor of English in Goucher College.	*English*

COLLEGE COURSES FOR TEACHERS

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work has been done without any reference to credit toward an academic degree.

Goucher College has also offered without reference to academic credit special courses of instruction and lectures open to teachers of Baltimore in an effort to serve a larger constituency than its regular students.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with Goucher College, has offered since 1909 courses of instruction to teachers whose vocation prevents their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1913-1914. It is the primary aim of these courses to provide the teachers in our public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in college classes. In order to give further encouragement to teachers in service to carry on extended systematic study, this plan of college courses for teachers also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degree of Bachelor of Arts.

Persons other than teachers will, as in the past, be admitted to these courses. They will be expected to present the proper qualifications for the subjects and courses they desire to pursue.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. These courses will be open to men and women alike, and will be carried on independently of the regular collegiate instruction of the institutions. In the case of women who may desire to become candidates for the baccalaureate degree, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the Collegiate Department of the Johns Hopkins University in the case of those men who desire to proceed to the baccalaureate degree. Total credits of sixty units or hours are required for graduation in each institution.

The instruction will be conducted as far as possible at the Johns Hopkins University. In some instances, classes and laboratory exercises may be held at Goucher College.

ADMISSION

The requirements for admission to the College Courses for Teachers conform in general to the requirements for matriculation fixed by the Johns Hopkins University in its Collegiate Department, and to the entrance requirements prescribed by Goucher College. The preparatory training desirable for the successful pursuit of these

courses is that represented by the completion of a standard four-year high school course.

Applicants may be admitted to these courses by either of the following means:

1. Passing an examination.
2. Presenting certificates:
    - (*a*) Of the College Entrance Examination Board.
    - (*b*) Of public and private high schools and normal schools approved by the Committee in charge.
    - (*c*) Of work completed in other colleges.

In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course.

Applications for admission to these courses must be presented to the Committee in charge of College Courses for Teachers.

ADMISSION WITH REFERENCE TO A DEGREE

Those applicants who wish to become candidates for the degree of Bachelor of Arts in the Johns Hopkins University are referred to the circular descriptive of "The College of Arts and Sciences of the Johns Hopkins University," 1913, pp. 51-59, for a detailed statement of the requirements for matriculation. This circular may be had by addressing the Registrar.

Those applicants who desire to become candidates for the same degree in Goucher College, are referred to the "Program of Goucher College," 1913, pp. 18-31, for a detailed statement of the corresponding requirements in this institution. This circular may be had by addressing the Registrar.

As a final requirement before the degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree of Bachelor of Arts is conferred by the Johns Hopkins University upon men only.

ADMISSION TO ADVANCED STANDING

The courses offered for 1913-1914 represent for the most part the work usually required in the first and second college years. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of these, an effort will be made to arrange for such instruction. In considering applications for advanced standing the Committee will be guided by the regulations in force, in such cases, in the two institutions.

EXPENSES

The charge for instruction will be at practically the same rate per hour as for the undergraduate courses in the Johns Hopkins University and Goucher College, namely:

Ten Dollars per year for each hour per week. Each course will continue throughout the academic year. Where laboratory fees are required they are additional. Three hours of laboratory work will be charged as one hour of recitation or lecture.

Fees are payable in semi-annual instalments, in October and February, at the office of the Treasurer of the Johns Hopkins University, 712 North Howard Street. Before payment of fees can be made, applicants must receive from the Committee in charge a card stating the courses to be taken.

SESSION

The College Courses for Teachers will open on Tuesday, October 14, 1913, and close on Saturday, May 30, 1914. Each course will include instruction for thirty weeks. Class-room and laboratory exercises will be given in the afternoon from Tuesday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual college recesses at Thanksgiving, Christmas, and Easter.

Applications for admission are to be filed with the Chairman of the Committee in charge of the College Courses for Teachers, the Johns Hopkins University, on or before October 4, 1913.

SCHEDULE OF HOURS

(Subject to minor changes at the opening of the courses in order to meet the convenience of students.)

	4.10—5.00 P. M.	5.10—6.00 P. M.
Tuesday	Education (Buchner) German 1 (Froelicher) German 2 (Roulston) German 3 (Wood) Latin (Mustard)	Chemistry (Lovelace) English 1 (Myers) English 2 (French) French 1 (Shefloe) French 2 (Brush) Mathematics (Bacon)
Wednesday	History (Abel) Psychology 1 (Dunlap) Spanish (Marden)	English 3 (Gay) Italian (Shaw)
Thursday	Education (Buchner) German 1 (Froelicher) German 2 (Roulston) German 3 (Wood) Latin (Mustard)	Chemistry (Lovelace) English 1 (Myers) English 2 (French) French 1 (Shefloe) French 2 (Brush) Mathematics (Bacon)
Friday	History (Abel) Spanish (Marden)	English 3 (Gay) Italian (Shaw)
	9.00—9.50 A. M.	10.00 A. M.
Saturday	French 1 (Shefloe) German 1 (Froelicher) German 2 (Roulston) Latin (Mustard) Mathematics (Bacon) Psychology 1 (Dunlap, 9—12)	Chemistry (Gilpin, 10—1)

THE COURSES OF INSTRUCTION

Any course for which there are fewer than ten applicants may be withdrawn.

The exact amount of credit towards the degree of Bachelor of Arts, which will be allowed for successful completion of each of the courses mentioned below, can be determined definitely only at the end of the year.

Chemistry

No previous knowledge of chemistry is required. The class-room work will comprise lectures illustrated by experiments and will be supplemented by occasional condensed reviews written at home. The work is based on Remsen's Chemistry (Briefer Course) and will cover the field of inorganic chemistry as far as possible. In the laboratory students will repeat experiments chosen from those performed in the class-room, and will make simple inorganic preparations. Two hours class-work, three hours laboratory work weekly.

A laboratory fee of $5.00 will be charged to cover the cost of chemicals. This fee does not include apparatus, which is loaned with charge for breakage only. (The minimum expense for breakage has been $1.63; the average $3.00.)

Associate Professors GILPIN and LOVELACE. Tuesday and Thursday, 5.10 p. m.; Saturday, 10 a. m. to 1 p. m.

Education

This introductory course on the principles of education will undertake a study of the processes of education with a view to understanding the work of the school and the various factors in individual development. The work is based on Henderson's Text-book in the Principles of Education.

Professor BUCHNER. Tuesday and Thursday, 4.10 p. m.

English

1. English Composition.

This course will include the theory of diction, structure, and the forms of prose composition, with some critical study of selected prose writers. Weekly themes will be required; these will be returned with written criticisms.

Dr. Myers. Tuesday and Thursday, 5.10 p. m.

2. Advanced English Composition.

This course will consist of the study and practice of the forms of prose discourse, including the examination of articles chosen from the columns of a current literary periodical and the writing of themes and essays. It will presuppose some previous work in English Composition of collegiate grade. For the sake of effectiveness in the conduct of the class, the enrollment will be limited to fifteen.

Dr. French. Tuesday and Thursday, 5.10 p. m.

3. English Literature.

Age of Dryden and Pope (1660-1780). A study of the classical period; that is, of the writers who flourished between the Restoration and the American Revolution. Beginning with an extended study of Dryden, the course will include the work of Swift, Pope, Johnson, Gray, Goldsmith, Burke, and other writers of prominence in poetry and prose. Some time will be given to the Restoration drama (Congreve, Vanbrugh), the rise of the novel (Defoe, Richardson, Fielding), and the beginning of periodical literature (Addison, Steele). The dawn of romanticism (Thomson, Gray, Goldsmith, Cowper) will be touched upon toward the close of the year.

Associate Professor Gay. Wednesday and Friday, 5.10 p. m.

French

In French, two courses will be offered:

1. A three-hour course in the elements of French adapted to those who wish to begin the study of French or who have had but a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation, and composition, and the ground covered will be essentially that of the corresponding collegiate course known as *French Elements.*

Professor Shefloe. Tuesday and Thursday, 5.10 p. m.; Saturday, 9.00 a. m.

2. A course in French reading, grammar, dictation and the outlines of literature for students who have had the equivalent of *Course* 1. The course will be given two or three hours a week; in the latter case, the work covered should correspond to that done in the collegiate course *French* 1.

Collegiate Professor Brush. Tuesday and Thursday, 5.10 p. m.

German

In German, three courses will be offered:

1. The Elements of German.

The "Essentials of German," by B. J. Vos (Henry Holt & Co.), will be the first text-book used, after which selections will be read from *Kreuz und Quer,* by R. Mezger and W. Mueller (American Book Co.)

Professor Froelicher. Tuesday and Thursday, 4.10 p. m.; Saturday, 9.00 a. m.

2. A course similar to undergraduate German 1, consisting of modern prose readings (C. F. Meyer, von Saar, Fulda, Keller, Sudermann), two hours weekly, and prose composition, one hour weekly.

Dr. Roulston. Tuesday and Thursday, 4.10 p. m.; Saturday, 9.00 a. m.

3. Readings in modern German drama (1800-1870). This course is designed for candidates who are already able to read and write German with some facility.

Witkowski's *Das deutsche Drama des neunzehnten Jahrhunderts* (Leipzig, Teubner) will be used as a parallel text-book, and dramas of Kleist, Grillparzer, Raimund, Platen, Hebbel, Ludwig and Anzengruber will be read. Written themes in German, involving literary appreciations, will be required.

Professor Wood. Tuesday and Thursday, 4.10 p. m.

History

The course in Mediæval History will confine itself to characteristic institutions and to great movements. Considerable collateral reading will be required and occasional work with sources made obligatory. A syllabus will be used, but no special text-book.

Associate Professor Abel. Wednesday and Friday, 4.10 p. m.

Italian

The object of the course for beginners will be to acquire a reading knowledge of modern Italian, and correct pronunciation. Prose composition will begin as soon as the most elementary part of the grammar has been mastered. The following text-books will be used: Grandgent, *Italian Grammar;* Wilkins and Atlrocchi, *Italian Short Stories;* Collodi, *Le Avventure di Pinocchio.*

Associate Professor Shaw. Wednesday and Friday, 5.10 p. m.

Latin

This course is similar to undergraduate Latin 1; Livy (selections); Terence (one play); Vergil, *Bucolics;*

Catullus (selections); Prose Composition; Private Reading (Cicero, *Cato Maior;* Vergil, *Aeneid,* bk. VIII).

Collegiate Professor MUSTARD. Tuesday and Thursday, 4.10 p. m., Saturday, 9.00 a. m.

Mathematics

The first part of the year will be devoted to a study of special topics in Algebra including theory of exponents, theory of logarithms, simultaneous equations, binomial theorem, elements of the theory of equations, and elements of the theory of determinants.

The second part of the year will be devoted to an introductory course in Plane Analytic Geometry including a discussion of the right line and of the circle and other conics as represented by their equations both Cartesian and Polar.

Pre-requisites: Elementary Algebra, Plane Geometry, Plane Trigonometry.

Associate Professor BACON. Tuesday and Thursday, 5.10 p. m., Saturday, 9.00 a. m.

(In case of a sufficient demand, a class in Calculus will be organized.)

Psychology.

1. An introductory course in normal human psychology, with especial emphasis on the sensory and intellectual factors in perception and learning. Lectures, readings, and laboratory work.

Associate Professor DUNLAP. Wednesday, 4.10 p. m., and Saturday, 9 to 12 a. m.

2. An experimental course, consisting of two laboratory periods per week.

Prerequisites: Psychology, 1.

Associate Professor DUNLAP. (Hours to be arranged.)

Spanish

A course adapted to beginners and similar to undergraduate Spanish 1. Texts: Ingraham, *Brief Spanish Grammar;* Matzke, *Spanish Readings;* Alarcón, *El Capitán Veneno;* Pérez Galdós, *Doña Perfecta.*

Professor MARDEN. Wednesday and Friday, 4.10 p. m.

ATTENDANTS ON COLLEGE COURSES FOR TEACHERS, 1912-1913

Hattie Josephine Adams. Baltimore. 524 *Rossiter Av.*
Eastern High School, 1891. *English III; Latin II.*

Delia Robinson Alford. Baltimore. 315 *N. Fulton Av.*
Western High School, 1906. *French I.*

Maude Cann Albich. Baltimore. 1137 *Harlem Av.*
Maryland State Normal School. *Education.*

Florence Irene Arnold. Baltimore. 2053 *Woodberry Av.*
Western High School, 1900. *English II.*

Howard Elmer Ashbury. Baltimore. 1017 *Cathedral St.*
M. D., University of Maryland, 1903. *French I; Elements of German.*

Ruth Adams Baer (Mrs.). Baltimore. 4 *E. Madison St.*
A. B., Goucher College, 1896. *French II; Elements of German.*

Florence Eilau Bamberger. Baltimore. 212 *Laurens St.*
Western High School, 1895. *German I; Psychology.*

Stella Hannah Bamberger. Baltimore. 212 *Laurens St.*
German I.

Emily Oliver Barton. Baltimore. 12 *E. Twenty-second St.*
English III.

Bessie Burns Bennett. Baltimore. 106 *W. North Av.*
Baltimore College of Dental Surgery, 1902. *English I.*

Clarence F. Bolgiano. Baltimore. 103 *S. Linwood Av.*
Baltimore Polytechnic Institute, 1908. *English III.*

Regina Maria Brady. Baltimore. 3029 *Windsor Av.*
Maryland State Normal School, 1900. *English III.*

Ethel Heath Brandt. Baltimore. 1214 *Mt. Royal Av.*
Stuart Hall (Va.). *Education.*

Stella Elizabeth Brown. Baltimore County. *Overlea.*
Reisterstown High School, 1897. *Elements of German.*

Agnes Emilie Buchholz. Baltimore. 748 *Reservoir St.*
Western High School. *English II; German II; Psychology.*

Leonora Ella Carpenter. Baltimore. 1317 *Park Av.*
Western High School. *German II.*

Margaret Kathryn Casey. Baltimore. 1233 *Mt. Royal Av.*
Academy of Mt. De Sales (Catonsville), 1911. *Education.*

Marie Chittick. Baltimore. 3001 *W. Presstman St.*
Philadelphia High School, 1908. *English III.*

Martha Ross Clark. Baltimore. *The Montreal.*
English III.

Elsa Sophia Conradi. Baltimore. 415 *E. Twenty-second St.*
Höhere Töchter Schule (Berlin). *French II; German II.*

CLARENCE MORRIS COOK. Baltimore. 310 *N. Monroe St.*
University of Maryland. *English I and II.*

ANNA CECILIA CRADY. Baltimore. 229 *N. Calhoun St.*
English II.

RUTH ARNOLD CRAWFORD. Baltimore County. *Roland Park.*
Arundell School. *Education.*

LAVINIA RUSSELL CROUSE. Baltimore. 1503 *Mt. Royal Av.*
Western High School. *English I.*

IDA CURTISS. Baltimore. 1524 *Park Av.*
Goucher College. *English II.*

MARIAN CURTISS. Baltimore. 1524 *Park Av.*
A. B., Goucher College, 1899. *French II.*

OCTAVIA AMELIA DALLAM. Baltimore. 1318 *Bolton St.*
English III; Latin II.

VIRGINIA DASHIELL. Baltimore. 1811 *Guilford Av.*
Western High School, 1906. *English I.*

AUGUSTA FREDERICKA DITTY. Baltimore. 220 *W. Lanvale St.*
Maryland State Normal School, 1888. *Education.*

NANNA DUKE DUSHANE. Baltimore County. *Roland Pk.*
French II.

ROSE ERDMAN. Baltimore. 3200 *Harford Road.*
Education.

ELIDA EVANS (MRS.) New York City. *The Stafford.*
Elements of German; Psychology.

THOMAS CARLAW FORRESTER. Baltimore County. *Parkville.*
United Kingdom College (Edinburgh). *English II.*

MARY EDITH FRANKS. Baltimore. 1704 *E. Chase St.*
Eastern High School, 1907. *Education.*

ROSALIE ELIZABETH GARDNER. Baltimore. 5 *W. Twenty-ninth St.*
Western High School, 1893. *French I; Latin II.*

MINNIE M. GESSFORD. Baltimore. 2030 *Huntingdon Av.*
Baltimore Training School, 1908; S. B., Columbia University, 1911. *German I.*

NELLIE LAVINIA GESSFORD. Baltimore. 2030 *Huntingdon Av.*
Western High School, 1911; Baltimore Training School. *English III.*

HILDA GILLET. Baltimore. 1411 *McCulloh St.*
Western High School, 1909; Baltimore Training School. *English I and II.*

ELISABETH GILMAN. Baltimore. 513 *Park Av.*
French II; Psychology.

CAROLINE ELSIE GROTE. Baltimore. 1045 *Myrtle Av.*
Baltimore Training School. *English II; German I.*

ROBERT MILTON HALL. Baltimore. 2023 *E. Preston St.*
Baltimore Polytechnic Institute, 1908; Columbia University (Summer School). *Education.*

Mary Ella Harrison. Baltimore. 1429 *McCulloh St.*
Ph. B., University of Chicago, 1910. *French I.*

Mary Steel Harvey. Baltimore. 1105 *McCulloh St.*
French II.

Caroline Hayden. Baltimore. 409 *Robert St.*
Western High School, 1884. *English III.*

Eleanor Cecilia Heavey. Howard County. *Ellicott City.*
Maryland State Normal School, 1890. *French I.*

Doralyn B. Heiskell. Baltimore. 1708 *Madison Av.*
M. D., Baltimore University, 1891. *Psychology.*

Minnie Estelle Hicks. Baltimore County. *Parkville.*
Maryland School for the Blind. *English III.*

Susie Harman Hollstein. Baltimore. 2929 *N. Calvert St.*
Western High School, 1893. *History I.*

Martha Florence Horner. Baltimore. 1209 *N. Caroline St.*
Eastern High School, 1901. *English III.*

Isabelle Meldrum Johnstone. Baltimore. 2043 *Kennedy Av.*
Eastern High School, 1901; Baltimore Training School. *English I.*

Viola Allen Joseph. Baltimore. 2303 *Brookfield Av.*
Goldsborough High School (N. C.), 1910. *Education.*

Anna Katzner. Baltimore. 1927 *McCulloh St.*
English I.

Fabius Katzner. Baltimore 1927 *McCulloh St.*
English I.

Mary Loretta Kelly. Baltimore. 2127 *N. Calvert St.*
Honesdale High School (Pa.), 1906. *English I.*

Sara Augusta Kemp. Baltimore. 839 *Harlem Av.*
English III.

Ray Klein. Baltimore. 2422 *Lakeview Av.*
Western High School, 1908; Baltimore Training School, 1910. *English I.*

Bessie Klinesmith. Baltimore. 1524 *N. Broadway.*
English II.

Grace Amanda Kramer. Baltimore. 319 *E. Twenty-fifth St.*
English III.

M. Helen Kramer. Baltimore. 319 *E. Twenty-fifth St.*
Baltimore Training School. *English I.*

Hattie Carrie Langley. Baltimore County. *Govans.*
English III.

Florence May Layman. Baltimore. 3724 *Park Heights Av.*
Maryland State Normal School, 1892. *Elements of German.*

Bertha Lillian Lewis. Baltimore Co. *Wilday Av., Govans.*
Towson High School, 1908. *Education.*

MARIE LORETTO LILLY. Baltimore. 1631 *N. Calvert St.*
A. B., Notre Dame College (Md.), 1900. *Education; English II and III.*

LULA WILHELMINA MARGARET LOUIS. Balt. 1725 *E. Lafayette Av.*
Education.

BLANCHE LANDEN MACCARTHY. Baltimore. 2052 *Linden Av.*
Western High School. *Psychology.*

EMMA HAZELTINE MECHEM. Baltimore. 1916 *Park Av.*
Western High School, 1886. *English I.*

ANNIE CATHERINE MEUSHAW. Balt. Co. *Winston Av., Govans.*
English III.

FREDERICK WILLIAM MILLER. Baltimore. 417 *E. Twenty-second St.*
Baltimore City College, 1888. *Education.*

LOUISA A. MILLER. Baltimore. 2500 *W. North Av.*
University of California. *English I; German II.*

JULIA AMANDA MOORE. Baltimore. 1327 *E. Eager St.*
Notre Dame College (Md.), 1910. *Education.*

KATHERINE ANNA MUHLBACH. Baltimore County. *Westport.*
Maryland State Normal School, 1900. *Elements of German.*

LUCY EMORY MURRAY. Baltimore County. *Catonsville.*
A. B., Goucher College, 1901 *French I.*

IDA NEUMANN. Baltimore. 1513 *N. Eden St.*
German II.

FRED CHEFFINS NUMBERS, JR. Baltimore County. *Parkville.*
English I.

MARION OLIVER. Baltimore. 1618 *John St.*
Eastern High School, 1888. *Education.*

WILLIE ADELE O'NEILL. Baltimore. 230 *N. Carey St.*
Western High School, 1895. *English I.*

CECILIA CHARLOTTE PRINCE. Baltimore. 2318 *E. Baltimore St.*
Eastern High School. *English I.*

FANNIE ELIZABETH PUMPHREY. Baltimore. 1801 *Madison Av.*
Maryland State Normal School, 1903. *French I.*

MILTON LUTHER REGUS. Baltimore. 9 *S. Payson St.*
Baltimore City College, 1907; Baltimore Training School. *English I.*

MARY BLANCHE REINDOLLAR. Baltimore. 2727 *St. Paul St.*
Teachers' College, Columbia University. *Elements of German.*

ELIZABETH RICE. Baltimore. 920 *Cathedral St.*
Education.

LULA MCDOWELL RICHARDSON. Baltimore. 1102 *Brentwood Av.*
Baltimore Training School. *German I; History I.*

RUTH ROSENBAUM. Baltimore. 2330 *Madison Av.*
Western High School, 1911. *Education.*

*May Lisle Ross. Baltimore Co. *Mt. Washington.*
English I and II.

Maud Stanard Ross. Baltimore. 1508 *McCulloh St.*
Eastern High School, 1884. *English III.*

Edna Rothholz. Baltimore. 2108 *Bolton St.*
Goucher College. *French II.*

Freda Rothholz. Baltimore. 2108 *Bolton St.*
Western High School, 1902. *English II.*

Ruth Mathilda Sanders. Baltimore. 2008 *Mt. Royal Terr.*
Notre Dame College (Md.), 1911. *Education.*

Anna Schmidt. Baltimore. 2516 *E. Baltimore St.*
Eastern High School, 1896. *German II.*

Florence Schubert. Baltimore.
Notre Dame College (Md.). *Hebrew I.*

Emma Osanne Sharp. Baltimore. 2526 *N. Calvert St.*
Eastern High School, 1899; Baltimore Training School. *German II.*

Helen Sherbert. Baltimore. 1800 *N. Calvert St.*
Western High School, 1900. *History I; Latin II.*

Katharine Milligan Smith. Baltimore. 2233 *St. Paul St.*
English I.

Mazie Eva Smith. Anne Arundel County. *Brooklyn.*
Maryland State Normal School, 1905. *English I.*

Agnes Snyder. Baltimore. 2134 *Oak St.*
Eastern High School, 1903; Baltimore Training School. *English I.*

Marie Emilie Staib. Baltimore. 1621 *W. North Av.*
Western High School, 1896. *English II.*

Florence Agnes Stansbury. Baltimore. 913 *Harlem Av.*
Western High School, 1909; Baltimore Training School. *English II.*

Irene Miller Steele. Baltimore. 1524 *N. Charles St.*
Maryland State Normal School, 1908; Columbia University (Summer School). *French I.*

Edith Victoria Stephenson. Baltimore. 1217 *Bolton St.*
Western High School, 1906; Baltimore Training School, 1909. *English I.*

Susan Ellicott Steuart. Baltimore County. *Roland Park.*
Roland Park Country School, 1912. *English I.*

Minnie Harrison Strayer. Baltimore. 109 *N. Carey St.*
Baltimore Training School. *English III.*

Catherine Bowie Clagett Thomas (Mrs.). Balt. 17 *W. 20th St.*
Western High School, 1904. *German I.*

Marion Dorothea Triebler. Baltimore. 1325 *Linden Av.*
Western High School, 1906; Baltimore Training School. *English II.*

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*Died March 22, 1913.

KATHERINE THERESA VALENTINE. Baltimore. 216 *Myrtle Av.*
Elements of German.

SARAH VANSANT. Baltimore. 1414 *Harlem Av.*
Eastern High School. *English I.*

LETTILDA WAREHEIM. Baltimore. 1103 *W. Baltimore St.*
Western High School, 1911. *Education.*

LOUISA AVONDALE WEEDON. Baltimore. 1306 *W. Lexington St.*
Maryland State Normal School, 1888. *English I.*

LETITIA ELEANOR WEER. Baltimore. 310 *E. Twenty-second St.*
Teachers' College, Columbia University. *French 1.*

GRACE LUCRETIA WELMORE. Baltimore. 1415 *John St.*
Elements of German.

JOSEPHINE RIDGELY WELMORE. Baltimore. 1415 *John St.*
Western High School, 1900. *Elements of German.*

EDITH MAY WHITAKER. Baltimore. 1532 *John St.*
Maryland State Normal School, 1903. *French I.*

VIRGINIA WIGHTMAN. Baltimore. 1412 *Linden Av.*
Eastern High School. *English I.*

ANNIE CULLUM WILLIAMS. Baltimore. 254 *Benson St.*
Education.

ROSALIE WINDSOR. Baltimore County. 3939 *Old York Rd.*
Education.

MARIE LENA WINDUS. Baltimore. 1025 *Light St.*
Western High School, 1907; Baltimore Training School. *History I.*

ELSIE LOUISE WIRTH. Baltimore. 1600 *Pennsylvania Av.*
Baltimore Training School. *Psychology.*

(116)

THE JOHNS HOPKINS PRESS OF BALTIMORE

American Chemical Journal. Ira Remsen, Editor. Monthly. 8vo. Volume XLVIII in progress. $5 per year. (Foreign postage, fifty cents.)

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American Journal of Philology. B. L. Gildersleeve, Editor. Quarterly. 8vo. Volume XXXIII in progress. $3 per volume. (Foreign postage, fifty cents.)

Contributions to Assyriology and Semitic Philology. Paul Haupt and Friedrich Delitzsch, Editors. Volume VIII in progress.

Johns Hopkins Hospital Bulletin. Monthly. 4to. Volume XXIII in progress. $2 per year. (Foreign postage, fifty cents.)

Johns Hopkins Hospital Reports. 8vo. Volume XVII in progress. $5 per volume. (Foreign postage, fifty cents.)

Johns Hopkins University Circular, including the President's Report, Annual Register, and Medical Department Catalogue. Monthly. 8vo. $1 per year.

Johns Hopkins University Studies in Historical and Political Science. Under the direction of the Departments of History, Political Economy, and Political Science. Monthly. 8vo. Volume XXX in progress. $3 per volume.

Memoirs from the Biological Laboratory. Five volumes have appeared.

Modern Language Notes. Edited by E. C. Armstrong, J. W. Bright, H. Collitz, and C. C. Marden (Managing Editor). Eight times yearly. 4to. Volume XXVII in progress. $2 per volume. (Foreign postage, twenty-five cents.)

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Report of the Maryland Geological Survey.

Terrestrial Magnetism and Atmospheric Electricity. L. A. Bauer, Editor. Quarterly. 8vo. Volume XVII in progress. $3 per volume. (Foreign postage, twenty-five cents.)

Photographic Reproduction of the Kashmirian Atharva-Veda. M. Bloomfield, Editor. 3 vols. Folio. $50.

Poema de Fernan Gonçalez. Edited by C. Carroll Marden. 284 pp. 8vo. $2.50 net.

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Studies in Honor of Professor Gildersleeve. 527 pp. 8vo. $6.

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The Hague Peace Conferences of 1899 and 1907. By James Brown Scott. Vol. I, The Conferences, 887 pp.; Vol. II, Documents, 548 pp. 8vo. $5.

The Eclogues of Baptista Mantuanus. By W. P. Mustard. 156 pp. 8vo. $1.50.

Diplomatic Negotiations of American Naval Officers, 1778-1883. By C. O. Paullin. 380 pp. 12mo. $2.

CALENDAR, 1914-1915

General Assembly, Saturday, 10 a. m., October 10 (Donovan Room).

College Courses for Teachers begin Tuesday, October 13, 1914.

Thanksgiving Day falls on Thursday, November 26, 1914.

The Christmas Recess begins Thursday morning, December 24, 1914.

Exercises will be resumed on Tuesday afternoon, January 5, 1915.

Commemoration Day falls on Monday, February 22, 1915.

The Spring Recess begins Thursday morning, April 1, and closes Wednesday evening, April 7, 1915.

College Courses for Teachers close Saturday, May 29, 1915.

COLLEGE COURSES FOR TEACHERS

OFFERED BY

THE JOHNS HOPKINS UNIVERSITY

AND

GOUCHER COLLEGE

1914-1915

BALTIMORE
The Johns Hopkins Press
1914

COMMITTEE IN CHARGE OF THE COLLEGE COURSES FOR TEACHERS

EDWARD F. BUCHNER, *Chairman,* Professor of Education and Philosophy.

ELEANOR L. LORD, Dean of the Faculty and Professor of History, Goucher College.

HENRY WOOD, Professor of German.

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up and returned to the Chairman of the Committee, on or before October 3, 1914.

Professor Buchner may be found in McCoy Hall, first floor, daily from September 26 to October 3 (3–5 p. m., Monday to Friday, 10 a. m., Saturday).

INSTRUCTORS

Henry Wood., Ph. D., *German*
Professor of German.
C. Carroll Marden, Ph. D., *Spanish*
Professor of Spanish.
Wilfred P. Mustard, Ph. D., *Latin*
Collegiate Professor of Latin.
Edward F. Buchner, Ph. D., *Education*
Professor of Education and Philosophy.
Murray P. Brush, Ph. D., *French*
Collegiate Professor of French.
James E. Shaw, Ph. D., *Italian*
Associate Professor of Italian.
J. Elliott Gilpin, Ph. D., *Chemistry*
Collegiate Professor of Chemistry.
William W. Ford, M. D., *Hygiene*
Associate Professor of Hygiene and Bacteriology.
Knight Dunlap, Ph. D., *Psychology*
Associate Professor of Psychology.
B. Franklin Lovelace, Ph. D., *Chemistry*
Associate Professor of Chemistry.
John C. French, Ph. D., *English*
Associate Professor of English.
Robert B. Roulston, Ph. D., *German*
Associate in German.
Charles A. Myers, Ph. D., *English*
Instructor in English.
Nathaniel R. Whitney, Ph. D., *Political Economy*
Instructor in Political Economy.
Hans Froelicher, Ph. D., *German*
Professor of German Language and Literature and of Art Criticism in Goucher College.
Joseph S. Shefloe, Ph. D., *French*
Professor of Romanic Languages in Goucher College.
Robert M. Gay, A. M., *English*
Professor of English in Goucher College.
Clara L. Bacon, Ph. D., *Mathematics*
Professor of Mathematics in Goucher College.
Annie H. Abel, Ph. D., *History*
Professor of History in Goucher College.

COLLEGE COURSES FOR TEACHERS

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work has been done without any reference to credit toward an academic degree.

Goucher College has also offered without reference to academic credit special courses of instruction and lectures open to teachers of Baltimore in an effort to serve a larger constituency than its regular students.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in coöperation with Goucher College, has offered since 1909 courses of instruction to teachers and others whose vocations prevent their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1914-1915. It is the primary aim of these courses to provide the teachers in our public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in college classes. In order to give further encouragement to teachers in service to carry on extended systematic study, this plan of college courses for teachers also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degree of Bachelor of Arts.

Persons other than teachers will, as in the past, be admitted to these courses. They will be expected to present the proper qualifications for the subjects and courses they desire to pursue.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. These courses will be open to men and women alike, and will be carried on independently of the regular collegiate instruction of the institutions. In the case of women who may desire to become candidates for the baccalaureate degree, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the Collegiate Department of the Johns Hopkins University in the case of those men who desire to proceed to the baccalaureate degree. Total credits of sixty units or hours are required for graduation in each institution.

The instruction will be conducted as far as possible at the Johns Hopkins University. In some instances, classes and laboratory exercises may be held at Goucher College.

ADMISSION

The requirements for admission to the College Courses for Teachers conform in general to the requirements for matriculation fixed by the Johns Hopkins University in its Collegiate Department, and to the entrance requirements prescribed by Goucher College. The preparatory training desirable for the successful pursuit of these courses is that represented by the completion of a standard four-year high school course.

Applicants may be admitted to these courses by either of the following means:

1. Passing an examination.
2. Presenting certificates:
    - (*a*) Of the College Entrance Examination Board.
    - (*b*) Of public and private high schools and normal schools approved by the Committee in charge.
    - (c) Of work completed in other colleges.

In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course.

ADMISSION WITH REFERENCE TO A DEGREE

Those applicants who wish to become candidates for the degree of Bachelor of Arts in the Johns Hopkins University are referred to the circular descriptive of "The College of Arts and Sciences of the Johns Hopkins University," 1914, pp. 55-63, for a detailed statement of the requirements for matriculation. This circular may be had by addressing the Registrar.

Those applicants who desire to become candidates for the same degree in Goucher College, are referred to the "Catalogue for 1914," pp. 16-29, for a detailed statement of the corresponding requirements in this institution. This circular may be had by addressing the Registrar.

As a final requirement before the degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree of Bachelor of Arts is conferred by the Johns Hopkins University upon men only.

ADMISSION TO ADVANCED STANDING

The courses offered for 1914-1915 represent for the most part the work usually required in the first, second, and third college years. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of these, an effort will be made to arrange for such instruction. In considering applications for advanced standing the Committee will be guided by the regulations in force, in such cases, in the two institutions.

EXPENSES

The charge for instruction will be at practically the same rate per hour as for the undergraduate courses in the Johns Hopkins University and Goucher College, namely:

Ten Dollars per year for each hour per week. Each course will continue throughout the academic year. Where laboratory fees are required they are additional. Three hours of laboratory work will be charged as one hour of recitation or lecture.

Fees are payable in semi-annual instalments, in October and February, at the office of the Treasurer of the Johns Hopkins University, 712 North Howard Street. Before payment of fees can be made, applicants must receive from the Committee in charge a card stating the courses to be taken.

SESSION

The College Courses for Teachers will open on Tuesday, October 13, 1914, and close on Saturday, May 29, 1915. Each course will include instruction for thirty weeks. Classroom and laboratory exercises will be given in the afternoon from Monday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual university recesses at Thanksgiving, Christmas, and Easter.

Applications for admission are to be filed with the Chairman of the Committee in charge of the College Courses for Teachers, the Johns Hopkins University, on or before October 3, 1914.

SCHEDULE OF HOURS

(Subject to minor changes at the opening of the courses in order to meet the convenience of students.)

	4.10—5.00 P. M.	5.10—6.00 P. M.
Monday	Education 1 (Buchner) History (Abel) Psychology 1 (Dunlap)	Education 2 (Buchner) History (Abel)
Tuesday	French 2 (Brush) German 1 Froelicher) German 2 (Roulston) German 3 (Wood) Latin (Mustard)	Chemistry (Lovelace) English 1 (Myers) English 3 (French) French 1 (Shefloe) French 2 (Brush) Mathematics (Bacon)
Wednesday	Education 1 (Buchner) Spanish (Marden)	Education 2 (Buchner) English 2 (Gay) Italian (Shaw) Political Economy (Whitney)
Thursday	French 3 (Brush) German 1 (Froelicher) German 2 (Roulston) German 3 (Wood) Latin (Mustard)	Chemistry (Lovelace) English 1 (Myers) English 3 (French) French 1 (Shefloe) French 3 (Brush) Mathematics (Bacon)
Friday	Spanish (Marden) Psychology 1 (Dunlap)	English 2 (Gay) Italian (Shaw) Political Economy (Whitney)
	9.00—9.50 A. M.	10.00 A. M.
Saturday	French 1 (Shefloe) German 1 (Froelicher) German 2 (Roulston) Hygiene (Ford) Latin (Mustard) Mathematics (Bacon)	Chemistry (Gilpin, 10—1) Hygiene (Ford)

THE COURSES OF INSTRUCTION

Any course for which there are fewer than ten applicants may be withdrawn.

The exact amount of credit towards the degree of Bachelor of Arts, which will be allowed for successful completion of each of the courses mentioned below, can be determined definitely only at the end of the year.

Chemistry

No previous knowledge of chemistry is required. The class-room work will comprise lectures illustrated by experiments and will be supplemented by occasional condensed reviews written at home. The work is based on Remsen's "Chemistry" (Briefer Course) and will cover the field of inorganic chemistry as far as possible. In the laboratory students will repeat experiments chosen from those performed in the class-room, and will make simple inorganic preparations. Two hours class-work, three hours laboratory work weekly.

A laboratory fee of $5.00 will be charged to cover the cost of chemicals. This fee does not include apparatus, which is loaned with charge for breakage only. (The minimum expense for breakage has been $1.63; the average $3.00.)

Collegiate Professor GILPIN and Associate Professor LOVELACE. Tuesday and Thursday, 5.10 p. m.; Saturday, 10 a. m. to 1 p. m.

Education

1. History of Education.

The course offered will present in outline the history of Education, tracing the development of those ideas, practices and institutions of the past which have been most effective in determining the essential features and problems of education in the present. The work is based on Monroe's "Text-book in the History of Education."

Professor BUCHNER. Monday and Wednesday, 4.10 p. m.

2. Principles of Education.

This introductory course on the principles of Education will undertake a study of education with a view to understanding the work of the school and the mental and social factors in individual development. The text-books used, with collateral reading, will be Ruediger's "Principles of Education," and King's "Social Aspects of Education."

Professor BUCHNER. Monday and Wednesday, 5.10 p. m.

English

1. English Composition.

This course will include the theory of diction, structure, and the forms of prose composition, with some critical study of selected prose writers. Weekly themes will be required; these will be returned with written criticisms.

Dr. MYERS. Tuesday and Thursday, 5.10 p. m.

2. English Literature.

The Poets of the Romantic Revival. The first two weeks will be spent in a survey of the origins of romanticism during the close of the 18th Century. Then will follow a study of the greater writers represented in the Revival,—Cowper, Crabbe, Blake, Burns, Scott, Wordsworth, Coleridge, Keats, Shelley, and Byron. As extended a study as the time permits will be made, in the first term, of Wordsworth and Coleridge; in the second, of Keats, Shelley, and Byron. Students will provide themselves with Page's "British Poets of the Nineteenth Century."

Professor GAY. Wednesday and Friday, 5.10 p. m.

3. American Literature.

This course will consist of a study of American literature, by types and periods, and a survey of the literary history of America. Stress will be laid on the later periods, and the works of contemporary writers will not be excluded. Written reports based on assigned readings will afford some opportunity for practice in writing. The enrollment in this class will be limited to twenty.

Associate Professor FRENCH. Tuesday and Thursday, 5.10 p. m.

French

1. French Elements.

   a. The Essentials of Grammar: Fraser and Squair, *French Grammar.*

   b. French Texts: Dumas, *le Chevalier de Maison-Rouge;* Labiche, *la Grammaire;* About, *la Mère de la marquise;* Augier, *le Gendre de M. Poirier;* Daudet, *Contes;* Molière, *L'Avare;* Bowen, *French Lyrics.*

This course is planned for students who begin the study of French. Upon the successful completion of the course the student receives credit for one course if offered as college work; if offered for matriculation it absolves the elementary requirements in French.

Professor SHEFLOE. Tuesday and Thursday, 5.10 p. m., Saturday, 9 a. m.

2. A course in French reading, grammar, and composition, for students who have had the equivalent of Course 1. The texts read will be chosen from the nineteenth century, with one or two classics of the seventeenth. The course will be given two hours or three a week; in the latter case the work covered should correspond to that done in the collegiate course French 1.

Collegiate Professor BRUSH. Tuesday, 4.10–5.50 p. m.

3. A course in the history of French comedy and drama since Molière. The class will read representative plays by Regnard, Destouches, Lesage, Marivaux, Nivelle de la Chaussée, Beaumarchais, Vigny, Musset, Pailleron, Augier, Dumas fils, and several contemporary writers. Lectures will be given on the development of comedy, and there will be prac-

tice in composition and in writing French from dictation. The course will be given two hours a week.

Collegiate Professor Brush. Thursday, 4.10 to 5.50 p. m.

German

1. German Elements.

a. Vos' *Essentials of German.*

b. Texts: Heyse, *Die Blinden;* Keller, *Kleider machen Leute;* Meyer, *Das Amulet;* Wilhelmi, *Einer muss heiraten.*

This course is adapted to those who wish to begin the study of German or who have had but a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation, and composition. Upon the successful completion of the work, the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the elementary requirements in German.

Professor Froelicher. Tuesday and Thursday, 4.10 p. m.; Saturday, 9 a. m.

2. A course similar to undergraduate German 1, consisting of modern prose readings (C. F. Meyer, von Saar, Fulda, Keller, Sudermann), two hours weekly, and prose composition, one hour weekly.

Dr. Roulston. Tuesday and Thursday, 4.10 p. m.; Saturday, 9 a. m.

3. Modern Drama and Prose Readings.

This course is intended for candidates who have completed Course 2, in whole or in part. Dramas by Heinrich von Kleist, Grillparzer, Hebbel and Gerhart Hauptmann, and Short Stories by Storm and other authors, will be read in annotated editions. There will be a weekly exercise in Prose Composition.

Professor Wood. Tuesday and Thursday, 4.10 p. m.

History

A course of lectures in the history of the Renaissance and Reformation. Collateral reading and a limited amount of source work will be required.

(In case of preference, a course in English History may be substituted.)

Professor Abel. Monday, 4.10 to 6 p. m.

Hygiene

The course in Hygiene will consist of lectures, laboratory demonstrations, and field work. The principles of hygiene will be considered with reference to their application to social conditions and to the needs of social workers.

Special problems, such as housing, city-construction, sanitation, public health administration and allied topics will be considered in detail. Collateral reading, with reports on special subjects, will be required.

Associate Professor Ford. Saturday, 9 to 11 a. m.

Italian

The object of the course for beginners will be to acquire a reading knowledge of modern Italian and correct pronunciation. Prose composition will begin as soon as the most elementary part of the grammar has been mastered. The following text-books will be used: Grandgent, *Italian Grammar;* Wilkins and Altrocchi, *Italian Short Stories;* Collodi, *Le Avventure di Pinocchio.*

Associate Professor Shaw. Wednesday and Friday, 5.10 p. m.

Latin

A course will be offered for the reading of the following authors: Livy (selections); Vergil, *Bucolics;* Horace, *Odes.* Students will also read privately, for examination: Cicero, *Cato Major;* Vergil, *Aeneid,* book VIII. The course will be given two or three hours a week; in the latter case, one hour a week will be given to Latin Composition, and the work covered should correspond to that done in the collegiate course Latin 1.

Collegiate Professor MUSTARD. Tuesday and Thursday, 4.10 p. m.; Saturday, 9 a. m.

Mathematics

The first part of the year will be devoted to a study of Algebra, the second part being given to an introductory course in Plane Analytic Geometry.

Pre-requisites: Elementary Algebra, Plane Geometry, Plane Trigonometry.

Profesor BACON. Tuesday and Thursday, 5.10 p. m.; Saturday, 9 a. m.

Political Economy

Instruction will be offered in the elements of political economy with particular reference to current economic problems. The text-books used will be Cheyney's "Industrial and Social History of England," Ely's "Outlines of Economics."

Dr. WHITNEY. Wednesday and Friday, 5.10 p. m.

Psychology

1. Introductory General Psychology.

A review of the fundamental facts and interpretations in the study of psychological processes in their relation to educational and social problems. Lectures, demonstrations, discussions, and assigned reading. Two hours weekly.

Associate Professor DUNLAP. Monday and Friday, 4.10 p. m.

2. An experimental course, consisting of two laboratory periods per week.

Pre-requisite: An introductory experimental course.

Associate Professor DUNLAP. (Hours to be arranged.)

Spanish

A course adapted to beginners and similar to undergraduate Spanish 1. Texts: Ingraham, *Brief Spanish Grammar;* Matzke, *Spanish Readings;* Alarcón, *El Capitán Veneno;* Pérez Galdós, *Doña Perfecta.*

Professor MARDEN. Wednesday and Friday, 4.10 p. m.

ATTENDANTS ON COLLEGE COURSES FOR TEACHERS

Hattie Josephine Adams. Baltimore. 524 *Rossiter Av.*
Eastern High School, 1891. *German II.*

Ida Cornelia Armiger. Baltimore Co. 505 *Orkney Rd., Govans.*
Western High School. *History of Education.*

Florence Irene Arnold. Baltimore. 2053 *Woodberry Av.*
Western High School, 1900. *English III.*

Frank Astor. Newport News, Va. 1306 *Madison Av.*
A. B., University of Virginia, 1912. *History of Education.*

Lucilla Colgate Austen. Baltimore Co. *Roland Park.*
French III.

Ethel Isabel Baker. Baltimore. 100 *N. Chester St.*
Eastern High School, 1911. *English II.*

Anna Taylor Baldwin. Baltimore. 1110 *N. Charles St.*
Huntingdon (Pa.) High School, 1911. *History of Education.*

Rosa Baldwin. Baltimore. 1615 *Linden Av.*
A. B., Goucher College, 1896. *German I.*

John Turner Bamberger. Baltimore Co. *Fullerton Heights.*
Baltimore City College. *French I.*

Stella Hannah Bamberger. Baltimore. 212 *Laurens St.*
Western High School. *History.*

Ella Maud Baxley. Baltimore. 1221 *Bolton St.*
Maryland State Normal School. *English I.*

Harold Cedric Bean. Baltimore. 1336 *N. Caroline St.*
A. B., University of Oregon, 1912. *French I.*

Georgie Berry Beaumont. Baltimore. 2106 *Brookfield Av.*
Western High School, 1910; Baltimore Training School, 1912. *English I.*

Meta Middendorf Becker. Baltimore. 420 *N. Carey St.*
A. B., Cornell University, 1912. *Principles of Education.*

Anna Bercowitz. Baltimore. 839 *Hollins St.*
Western High School. *English III.*

Grace Halle Blondheim. Baltimore. 714 *Newington Av.*
A. B., Goucher College, 1913. *French III.*

Margaret Donaldson Boehm. Baltimore. *Roland Park.*
Roland Park School, 1912. *Psychology I.*

KATHERINE BRADY. Baltimore. 2023 *Maryland Av.*
Notre Dame College (Md.). *English II; History of Education.*

JENNIE ZELDA BRODIE. Baltimore. 2337 *Druid Hill Av.*
Western High School, 1912. *English I.*

CLARA MAUDE BROWN. Baltimore. 705 *Gladstone Av., Roland Pk.*
History.

STELLA ELIZABETH BROWN. Baltimore. 1234 *W. Lafayette Av.*
Maryland State Normal School, 1899. *German II.*

ISABEL HAZEL BUCHER. Baltimore. 708 *Homestead St.*
Eastern High School, 1905; Baltimore Training School. *French I.*

AGNES EMILIE BUCHHOLZ. Baltimore. 748 *Reservoir St.*
Western High School. *English III; Latin.*

FLORENCE MATHILDE BURGER. Baltimore. 2828 *St. Paul St.*
Eastern High School, 1901; Baltimore Training School. *German I.*

ALICE DALLAM CAMPBELL. Baltimore. 232 *Laurens St.*
Philadelphia High School, 1887; Philadelphia Normal School. *Psychology I.*

LEONORA ELLA CARPENTER. Baltimore. 1317 *Park Av.*
Western High School. *German III.*

ALICE CASPARI. Baltimore. 1129 *Harlem Av.*
Western High School, 1897; Baltimore Training School, 1909. *German I.*

ETHEL JEAN CHURCH. Baltimore. 2100 *N. Washington St.*
Western High School, 1905. *German II.*

MARTHA ROSS CLARK. Baltimore. *The Montreal.*
English II.

SARAH HINES CLAIBORNE. Baltimore. 26 *S. Broadway.*
Edgewood School. *History of Education.*

ESTHER COLSTON COALE (MRS.). Baltimore. *Roland Park.*
French III.

RAYMOND KENMORE COLE. Baltimore. 1723 *Thomas Av.*
Baltimore City College, 1908. *English III; French III.*

ELSA SOPHIA CONRADI. Baltimore. 415 *E. 22nd St.*
Höhere Töchter Schule (Berlin). *French III.*

ANNA CECILIA CRADY. Baltimore. 711 *St. Paul St.*
English III.

IDA CURTISS. Baltimore. 1524 *Park Av.*
Goucher College. *English III.*

OCTAVIA AMELIA DALLAM. Baltimore. 1318 *Bolton St.*
Latin.

Carrie Virginia Dare. Baltimore. 2433 *St. Paul St.*
Western High School. *English III.*

Martha Juliet Dittus. Baltimore. 2118 *Bolton St.*
Western High School, 1895. *English III.*

Nanna Duke Dushane. Baltimore Co. *Roland Park.*
French III.

Mabel Eigelberner. Baltimore. 1610 *John St.*
Western High School; Baltimore Training School, 1906. *English I.*

Frances Evans. Baltimore. 845 *Hamilton Ter.*
French III.

Anna Farnen. Baltimore. 3410 *Bateman Av.*
Eastern High School, 1909; Baltimore Training School, 1911. *English I.*

Harry Christian Finck. Baltimore. 1629 *Ashland Av.*
Baltimore Polytechnc Institute, 1906. *English I.*

Mabel Cornelia Firor. Baltimore. 715 *Newington Av.*
Western High School, 1910. *History of Education.*

Rosalie Elizabeth Gardner. Baltimore. 5 *W. 29th St.*
Western High School, 1893. *French II.*

Ida Belle Gaugh. Baltimore. 14 *E. Franklin St.*
History of Education.

Elizabeth Josephine Gerhardt. Baltimore. 1339 *W. Lafayette Av.*
Western High School, 1909; Baltimore Training School, 1911. *Latin.*

Elisabeth Gilman. Baltimore. 513 *Park Av.*
French III; Psychology II.

Carrie Virginia Glanding. Baltimore. 1641 *Tenth St., Walb'k.*
Western High School, 1896. *English III.*

Pauline Louise Gleichman. Baltimore. 629 *Gorsuch Av.*
Western High School. *English I.*

Clare Randolph Goode. Baltimore. 829 *N. Charles St.*
Oldfields School (Md.). *English II.*

Helen Viola Greenholt. Baltimore. 1723 *Rutland Av.*
Eastern High School, 1909; Baltimore Training School, 1911. *English I.*

Caroline Elsie Grote. Baltimore. 1045 *Myrtle Av.*
Baltimore Training School. *French II; German III.*

Mildrer Elizabeth Hahn. Baltimore. 714 *N. Carrollton Av.*
Western High School, 1909. *History of Education.*

Emily Hardy Hall. Baltimore. *Goucher College.*
Goucher College. *French I.*

Robert Milton Hall. Baltimore. 2023 *E. Preston St.*
Baltimore Polytechnic Institute, 1908. *English I and III.*

Cyril Hansell. Baltimore. 309 *W. Lanvale St.*
Baltimore City College, 1908; LL. B., University of Maryland, 1911. *Principles of Education.*

Edith Elizabeth Harman. Howard Co. *Hanover.*
Maryland State Normal School. *German I.*

Emma Virginia Harrison. Baltimore. 1215 *Madison Av.*
French II; History.

Hartman Kuhn Harrison (Mrs.). Baltimore. 1424 *Bolton St.*
Psychology I.

Angela Conrad Hartman. Baltimore. *Roslyn Apts., Walb'k.*
St. Patrick's High School (Cumberland), 1905. *Chemistry.*

Mary Steel Harvey. Baltimore. 539 *Columbia Av.*
French III.

Katharine Loretta Healy. Baltimore. 3817 *Clifton Av.*
Eastern High School, 1907; Baltimore Training School, 1909. *English I.*

Marie Virginia Heaphy. Baltimore. 325 *E. 22nd St.*
Eastern High School, 1910; Baltimore Training School, 1912. *English I.*

Eleanor Cecilia Heavey. Howard Co. *Ellicott City.*
Maryland State Normal School, 1890. *French II.*

Doralyn B. Heiskell. Baltimore. 1708 *Madison Av.*
M. D., Baltimore University, 1891. *Chemistry.*

Isabella G. Hiss. Baltimore. 239 *W. Lafayette Av.*
French II.

Mary Elizabeth Holland. Baltimore. 2309 *Windsor Mill Rd.*
Maryland State Normal School, 1906. *French I.*

George Delphine Huncke. Baltimore. 214 *W. Lanvale St.*
A. B., Harvard University, 1912. *Principles of Education.*

William Beall Hunt. Baltimore. *Roland Park.*
Baltimore City College. *Principles of Education.*

Josephine Jamison. Baltimore. 909 *N. Carrollton Av.*
Western High School, 1908; Baltimore Training School, 1910. *French I.*

Isabelle Meldrum Johnstone. Baltimore. 2043 *Kennedy Av.*
Eastern High School, 1901; Baltimore Training School. *English II.*

Beulah Gordon Jones. Baltimore. *Forest Park.*
Western High School. *History of Education.*

Rosina Coblens Joseph. Baltimore. 1513 *Eutaw Place.*
Western High School, 1904. *English III.*

Anna Katzner. Baltimore. 1927 *McCulloh St.*
English II.

Fabius Katzner. Baltimore. 1927 *McCulloh St.*
English II.

Lutie Marguerite Keech. Baltimore. 2425 *N. Calvert St.*
Eastern High School, 1910; Baltimore Training School, 1912. *History.*

Clarence Edward Keefer. Baltimore. 235 *N. Stricker St.*
Baltimore City College, 1909. *English I.*

Alice Bird Kempton. Baltimore. 924 *Newington Av.*
Western High School, 1887. *English III.*

Nettie Estelle Kinsley. Baltimore. 26 *N. Mount St.*
Western High School, 1908; Baltimore Training School, 1911. *English I.*

Marguerite Fredericka Klein. Baltimore. 2311 *N. Calvert St.*
Western High School, 1908. *History of Education.*

Tessie Fredicka Koestler. Catonsville. *Norwood Av.*
French II.

Grace Amanda Kramer. Baltimore. 319 *E. 25th St.*
French I.

M. Helen Kramer. Baltimore. 319 *E. 25th St.*
Baltimore Training School. *Chemistry.*

Emma Emily Kuehn. Baltimore. 811 *W. Saratoga St.*
Western High School. *English I.*

Anna Regina Laubheimer. Baltimore. 2526 *N. Calvert St.*
Eastern High School, 1906. *German III.*

Florence May Layman. Baltimore. 3724 *Park Heights Av.*
Maryland State Normal School, 1892. *German II.*

Isabel Lazarus. Baltimore. 1526 *Park Av.*
Chemistry.

Irving Levie. Baltimore. 1727 *Smallwood St.*
English Composition I.

Charles Sumner Levy. Baltimore. 2913 *O'Donnell St.*
Baltimore City College. *English II.*

Anna E. Linsley. Baltimore. 1928 *W. Mulberry St.*
Maryland State Normal School, 1896. *English III.*

Marguerite Elmore Linthicum. Baltimore. 701 *E. 41st St.*
Annapolis High School, 1911; Baltimore Training School, 1913. *English III; Psychology I.*

Hilda Louis. Baltimore. 808 *Newington Av.*
Eastern High School, 1894. *English III.*

Blanche Landen MacCarthy. Baltimore. 2052 *Linden Av.*
Western High School. *Psychology II.*

Natha Annette Mann. Baltimore. 2213 Edgmont Av.
Western High School, 1906; Baltimore Training School, 1908. *English II.*

Amy Russell Manning. Baltimore. 918 *N. Calvert St.*
Bryn Mawr School, 1911. *English I.*

Ina Craig McMullen. Baltimore. 1027 *W. Lanvale St.*
Western High School. *English I-III.*

Annie Catherine Meushaw. Balt. Co. *Winston Av., Govans.*
History.

M. Isabelle Miller. Baltimore. 3303 *Walbrook Av.*
Western High School, 1898. *English I.*

Grace Magdalene Moore. Baltimore. 1327 *E. Eager St.*
Notre Dame College (Md.), 1911. *History of Education.*

Grace Margaret Morrow. Baltimore. 3800 *Clifton Av.*
Eastern High School, 1893. *English II.*

Gertrude Moses. Baltimore. 2002 *Bolton St.*
Eastern High School, 1907; Baltimore Training School. *French I.*

Katherine Frances Muesse. Baltimore. 1248 *N. Broadway.*
Eastern High School, 1894. *English III.*

Katherine Anna Mühlbach. Baltimore Co. *Westport.*
Maryland State Normal School, 1900. *German II.*

Mary Cleland Nelson. Baltimore Co. *Riderwood.*
French III.

Ida Neumann. Baltimore. 1513 *N. Eden St.*
Eastern High School, 1895. *German III.*

Ethel Norris. Baltimore. 1603 *Linden Av.*
Maryland State Normal School, 1903. *German I.*

Fred Cheffins Numbers, Jr. Baltimore Co. *Overlea.*
History of Education; English II.

Genevieve M. O'Brien. Baltimore. 334 *N. Calhoun St.*
Western High School, 1906; Baltimore Training School, 1908. *English I.*

Rose Oppenheim. Baltimore. 1209 *W. North Av.*
Eastern High School. *English III.*

Olivia Oram Osborn (Mrs.) Baltimore Co. 112 *Oakley Av.*
Maryland State Normal School, 1898. *English III.*

Hattie Ottenheimer. Baltimore. 2072 *Linden Av.*
English III.

Sue Elizabeth Owens. Baltimore. 2428 *Guilford Av.*
Western High School, 1908. *History of Education.*

Eleanor Robins Presstman. Baltimore Co. *Woodlawn.*
Western High School. *English I.*

Margaret Junkin Preston. Baltimore. 819 *N. Charles St.*
Bryn Mawr School, 1908; Bryn Mawr College. *History of Education.*

Henrietta George Price (Mrs.) Towson. *Aigburth Park.*
Psychology I.

Roberta Helen Price. Baltimore Co. *Timonium.*
History of Education.

Cecilia Charlotte Prince. Baltimore. 2318 *E. Baltimore St.*
Eastern High School. *English II.*

Eliza Pendleton Randall (Mrs.) Baltimore. 1016 *St. Paul St.*
French III.

Elizabeth Blanchard Randall. Baltimore Co. *Catonsville.*
St. Timothy's School. *German I; Psychology I.*

Katherine Brune Randall. Baltimore Co. *Catonsville.*
St. Timothy's School, 1907. *German II.*

Evelyn Hilton Read. Baltimore Co. 4211 *Maine Av.*
Western High School. *History of Education.*

George Buchanan Redwood. Baltimore. 918 *Madison Av.*
A. B., Harvard University, 1910. *English II.*

Lula McDowell Richardson. Baltimore. 1102 *Brentwood Av.*
Baltimore Training School. *French II; German III.*

May Richardson. Baltimore. 1610 *McCulloh St.*
Western High School, 1908. *History of Education.*

Martin Arnold Roberts. Baltimore. 2120 *E. Baltimore St.*
Leechburg (Pa.) High School. *English III; History.*

Helen Eugenia Robinson. Baltimore. 513 *N. Carrollton Av.*
English III.

Sarah Lucy Roche. Baltimore. 1815 *E. Lombard St.*
English III.

Marguerite Helen Rosenau. Baltimore. 1515 *Eutaw Place.*
Western High School, 1912. *English I; French II; Latin.*

Rena Jacobi Rosenheim. Baltimore. 851 *Harlem Av.*
Western High School, 1910. *English III.*

Maud Standard Ross. Baltimore. 1508 *McCulloh St.*
Eastern High School, 1884. *English III.*

Ellen Katherine Rothe. Baltimore. 1216 *Harford Rd.*
Eastern High School, 1908. *French I.*

Bertha Louise Russell. Baltimore Co. *Radnor Av., Govans.*
Maryland State Normal School, 1896. *English I.*

Mary Melvina Selby. Baltimore. 1632 *Tenth St., Walbrook.*
Columbia University. *English III.*

Jessie Marie Sellman. Baltimore. 1416 *Penna. Av.*
Western High School, 1909; Baltimore Training School, 1911. *Latin.*

Esther Jane Shamberger. Baltimore. 1507 *McCulloh St.*
Maryland State Normal School, 1899. *Chemistry.*

Helen Sherbert. Baltimore. 1800 *N. Calvert St.*
Western High School, 1900. *English II; Latin (Prose Composition).*

Harold Sigmund. Baltimore. 703 *N. Howard St.*
Baltimore City College, 1910. *English II.*

Olive Cushing Smith. Baltimore. 4 *E. Biddle St.*
Psychology I.

Clara Eva Smithson. Baltimore. 1333 *W. Lafayette Av.*
Baltimore State Normal School, 1898. *English III.*

Elizabeth Anna Smyth. Baltimore. 1206 *Bolton St.*
Western High School. *English III.*

Mary Ellen Snow. Baltimore. *Roland Park.*
Friends' School, 1913. *French II; German I.*

Marie Emilie Staib. Baltimore. 1621 *W. North Av.*
Western High School, 1896. *English III.*

Florence Agnes Stansbury. Baltimore. 1037 *Edmondson Av.*
Western High School, 1909; Baltimore Training School. *English I.*

Robert Boyd Stewart. Baltimore.
A. B., University of Toronto, 1905, and A. M., 1906. *German I.*

Mabel Belmonte Stinson. Baltimore. 1631 *E. Oliver St.*
Eastern High School, 1896. *English III.*

Minnie Harrison Strayer. Baltimore. 109 *N. Carey St.*
Baltimore Training School. *English II.*

Florence Stromberg. Baltimore. 2339 *Madison Av.*
Western High School. *English III.*

Helen Stromberg. Baltimore. 2339 *Madison Av.*
Western High School, 1893. *English III.*

Martha Stromberg. Baltimore. 2339 *Madison Av.*
Western High School, 1887. *English III.*

Mary Emma Stromenger. Baltimore. 132 *Jackson Place.*
Eastern High School, 1888. *English I.*

Anna Augusta Stuckert. Baltimore. 618 *E. Baltimore St.*
Baltimore Training School, 1903. *German II.*

Cyrus Cressy Sturgis. Baltimore. *Park Circle Apts.*
S. B., University of Washington, 1913. *French I.*

William James Taylor, Jr. Baltimore. 226 *N. Milton Av.*
Calvert Hall College, 1908. *Chemistry.*

Catherine Bowie Clagett Thomas (Mrs.) Balt. 17 *W. 20th St.*
Western High School, 1904. *German III.*

Katherine Theresa Valentine. Baltimore. 216 *Myrtle Av.*
German II.

Celia Vandermast. Baltimore Co. 1405 *S. Clinton St.*
Maryland State Normal School, 1910. *German II.*

Letitia Eleanor Weer. Baltimore. 310 *E. 22nd St.*
Teachers College, Columbia University. *French II.*

Mary Colston Whitehead (Mrs.) Baltimore. 1527 *Bolton St.*
French III.

Virginia Wightman. Baltimore. 1412 *Linden Av.*
Eastern High School. *English II.*

Ellen Cecilia Wilhelm. Baltimore. 2004 *Walbrook Av.*
Maryland State Normal School. *French I.*

George Richard Wilkinson. Baltimore. 1020 *N. Broadway.*
S. B., Davidson College, 1912. *German I.*

Margaretta W. Williams. Baltimore. 1128 *Cathedral St.*
English I; History.

Elsie Louise Wirth. Baltimore. 1600 *Pennsylvania Av.*
Baltimore Training School. *Principles of Education.*

Miriam Elizabeth Woolf. Baltimore Co. 4212 *Mass. Av.*
Western High School, 1911; Baltimore Training School, 1913. *English I.*

Corren Pinckney Youmans. Fairfax, S. C. 144 *Jackson Place.*
S. B., Clemson College (S. C.), 1913. *French I.*

Bessie Colston Young (Mrs.) Baltimore. *Cold Spring Lane.*
Bryn Mawr School. *French III.*

(167)

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No. 5

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THE
JOHNS HOPKINS UNIVERSITY CIRCULAR

COLLEGE COURSES FOR TEACHERS

1915-1916

Baltimore, Maryland
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Issued Monthly from October to July
May, 1915

[New Series, 1915, No. 5]
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CALENDAR 1915-1916

General Assembly, Saturday, 10 a. m., October 9 (Donovan Room).

College Courses for Teachers begin on Monday, October 11, 1915.

Thanksgiving Day falls on Thursday, November 25, 1915.

The Christmas Recess begins Friday morning, December 24, 1915.

Exercises will be resumed on Tuesday afternoon, January 5, 1916.

Commemoration Day falls on Tuesday, February 22, 1916.

The Spring Recess begins Thursday morning, April 20, and closes Wednesday evening, April 26, 1916.

College Courses for Teachers close Saturday, May 27, 1916.

UNIVERSITY OF ILLINOIS LIBRARY
JUN 24 1915

COLLEGE COURSES FOR TEACHERS

OFFERED BY

THE JOHNS HOPKINS UNIVERSITY

AND

GOUCHER COLLEGE

1915-1916

BALTIMORE
THE JOHNS HOPKINS PRESS
1915

COMMITTEE IN CHARGE OF THE COLLEGE COURSES FOR TEACHERS

EDWARD F. BUCHNER, *Chairman,* Professor of Education.

ELEANOR L. LORD, Dean of the Faculty and Professor of History, Goucher College.

HENRY WOOD, Professor of German.

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up by those not previously registered and returned to the Chairman of the Committee, on or before October 2, 1915.

Professor Buchner may be found in McCoy Hall, first floor, daily from September 25 to October 2 (3–5 p. m., Monday to Friday, 10 a. m., Saturday).

INSTRUCTORS

Henry Wood, Ph. D. Professor of German.	*German*
Jacob H. Hollander, Ph. D., Professor of Political Economy.	*Social Problems*
John M. Vincent, Ph. D., Professor of European History.	*History*
C. Carroll Marden, Ph. D., Professor of Spanish.	*Spanish*
Wilfred P. Mustard, Ph. D., Collegiate Professor of Latin.	*Latin*
Edward F. Buchner, Ph. D., Professor of Education.	*Education*
George E. Barnett, Ph. D., Professor of Statistics.	*Social Problems*
Murray P. Brush, Ph. D., Collegiate Professor of French.	*French*
J. Elliott Gilpin, Ph. D., Collegiate Professor of Chemistry.	*Chemistry*
William W. Ford, M. D., Associate Professor of Hygiene and Bacteriology.	*Hygiene*
James E. Shaw, Ph. D., Associate Professor of Italian.	*Italian*
Knight Dunlap, Ph. D., Associate Professor of Psychology.	*Psychology*
B. Franklin Lovelace, Ph. D., Associate Professor of Chemistry.	*Chemistry*
John C. French, Ph. D., Associate Professor of English.	*English*
C. Macfie Campbell, M. D., Associate Professor of Psychiatry.	*Psychopathology*
Robert B. Roulston, Ph. D., Associate in German.	*German*
Charles A. Myers, Ph. D., Instructor in English.	*English*
Charles A. Laubach, M. D., Assistant in Hygiene and Bacteriology.	*Hygiene*
Nathaniel R. Whitney, Ph. D., Instructor in Political Economy.	*Political Economy*
Hans Froelicher, Ph. D., Professor of German Language and Literature and of Art Criticism in Goucher College.	*German*
Joseph S. Shefloe, Ph. D., Professor of Romanic Languages in Goucher College.	*French*
Robert M. Gay, A. M., Professor of English in Goucher College.	*English*
Clara L. Bacon, Ph. D., Professor of Mathematics in Goucher College.	*Mathematics*

COLLEGE COURSES FOR TEACHERS

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work has been done without any reference to credit toward an academic degree.

Goucher College has also offered without reference to academic credit special courses of instruction and lectures open to teachers of Baltimore in an effort to serve a larger constituency than its regular students.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in coöperation with Goucher College, has offered since 1909 courses of instruction to teachers and others whose vocations prevent their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1915–1916. It is the primary aim of these courses to provide the teachers in our public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in college classes. In order to give further encouragement to teachers in service to carry on extended systematic study, this plan of college courses for teachers also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degree of Bachelor of Arts.

Persons other than teachers will, as in the past, be admitted to these courses. They will be expected to present the proper qualifications for the subjects and courses they desire to pursue.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. These courses will be open to men and women alike, and will be carried on independently of the regular collegiate instruction of the institutions. In the case of women who may desire to become candidates for the baccalaureate degree, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the Collegiate Department of the Johns Hopkins University in the case of those men who desire to proceed to the baccalaureate degree. Total credits of sixty units or hours are required for graduation in each institution.

The instruction will be conducted as far as possible at the Johns Hopkins University. In some instances, classes and laboratory exercises may be held at Goucher College.

ADMISSION

The requirements for admission to the College Courses for Teachers conform in general to the requirements for matriculation fixed by the Johns Hopkins University in its Collegiate Department, and to the entrance requirements prescribed by Goucher College. The preparatory training desirable for the successful pursuit of these courses is that represented by the completion of a standard four-year high school course.

Applicants may be admitted to these courses by either of the following means:

1. Passing an examination.
2. Presenting certificates:
    - (*a*) Of the College Entrance Examination Board.
    - (*b*) Of public and private high school and normal schools approved by the Committee in charge.
    - (*c*) Of work completed in other colleges.

In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course.

ADMISSION WITH REFERENCE TO A DEGREE

Those applicants who wish to become candidates for the degree of Bachelor of Arts in the Johns Hopkins University are referred to the circular descriptive of The College of Arts and Sciences of the Johns Hopkins University, 1915, pp. 52-63, for a detailed statement of the requirements for matriculation. This circular may be had by addressing the Registrar.

Those applicants who desire to become candidates for the same degree in Goucher College, are referred to the Announcements for 1915-16, pp. 29-42, for a detailed statement of the corresponding requirements in this institution. This circular may be had by addressing the Registrar.

As a final requirement before the degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree of Bachelor of Arts is conferred by the Johns Hopkins University upon men only.

ADMISSION TO ADVANCED STANDING

The courses offered for 1915–1916 represent for the most part the work usually required in the first, second, and third college years. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of these, an effort will be made to arrange for such instruction. In considering applications for advanced standing the Committee will be guided by the regulations in force, in such cases, in the two institutions.

EXPENSES

The charge for instruction will be at practically the same rate per hour as for the undergraduate courses in the Johns Hopkins University and Goucher College, namely:

Ten Dollars per year for each hour per week. Each course will continue throughout the academic year. Where laboratory fees are required they are additional. From two to three hours of laboratory work will be charged as one hour of recitation or lecture. The special fee for Education 3 is Seven Dollars.

Fees are payable in semi-annual instalments, in October and February, at the office of the Treasurer of the Johns Hopkins University, 712 North Howard Street. Before payment of fees can be made, applicants must receive from the Chairman of the Committee a card stating the courses to be taken.

SESSION

The courses will open on Monday, October 11, 1915, and close on Saturday, May 27, 1916. Each course will include instruction for thirty weeks. Class-room and laboratory exercises will be given in the afternoon from Monday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual university recesses at Thanksgiving, Christmas, and Easter.

Applications for admission are to be filed with the Chairman of the Committee, the Johns Hopkins University, on or before October 2, 1915.

SCHEDULE OF HOURS

(Subject to minor changes at the opening of the courses in order to meet the convenience of students.)

	4.10—5.00 P. M.	5.10—6.00 P. M.
Monday	Education 2 (Buchner) German 3 (Wood, 4.30) Psychology 1 (Dunlap)	Education 1 (Buchner)
Tuesday	French 2 (Brush) German 1 (Froelicher) German 2 (Roulston) History (Vincent) Latin (Mustard)	Chemistry (Lovelace) English 1 (Myers) English 2 (French) French 1 (Shefloe) French 2 (Brush) Mathematics (Bacon)
Wednesday	Education 2 (Buchner) French 3 (Brush) German 3 (Wood, 4.30) Spanish (Marden)	Education 1 (Buchner) English 3 (Gay) French 3 (Brush) Italian (Shaw) Political Economy 1 (Whitney) Political Economy 2 (Hollander and Barnett)
Thursday	German 1 (Froelicher) German 2 (Roulston) History (Vincent) Latin (Mustard)	Chemistry (Lovelace) English 1 (Myers) English 2 (French) French 1 (Shefloe) Mathematics (Bacon)
Friday	Psychology 1 (Dunlap) Spanish (Marden)	English 3 (Gay) Italian (Shaw) Political Economy 1 (Whitney) Political Economy 2 (Hollander and Barnett)
	9.00—9.50 A. M.	10.00 A. M.—1.00 P. M.
Saturday	Education 3 (Campbell, 9—11) French 1 (Shefloe) German 1 (Froelicher) German 2 (Roulston) Hygiene (Ford and Laubach, 9—12) Latin (Mustard) Mathematics (Bacon)	Chemistry (Gilpin, 10—1)

THE COURSES OF INSTRUCTION

Any course for which there are fewer than ten applicants may be withdrawn.

The exact amount of credit towards the degree of Bachelor of Arts, which will be allowed for successful completion of each of the courses mentioned below, can be determined definitely only at the end of the year.

Chemistry

No previous knowledge of chemistry is required. The class-room work will comprise lectures illustrated by experiments and will be supplemented by occasional condensed reviews written at home. The work is based on Remsen's "Chemistry" (Briefer Course) and will cover the field of inorganic chemistry as far as possible. In the laboratory students will repeat experiments chosen from those performed in the class-room, and will make simple inorganic preparations. Two hours class-work, three hours laboratory work weekly.

A laboratory fee of $5.00 will be charged to cover the cost of chemicals. This fee does not include apparatus, which is loaned with charge for breakage only. (The minimum expense for breakage has been $1.63; the average $3.00.)

Collegiate Professor GILPIN and Associate Professor LOVELACE. Tuesday and Thursday, 5.10 p. m.; Saturday, 10 a. m. to 1 p. m.

Education

1. History of Education.

The course offered will present in outline the history of Education, tracing the development of those ideas, practices and institutions of the past which have been most effective in determining the essential features and problems of education in the present. The work is based on Monroe's "Textbook in the History of Education."

Professor BUCHNER. Monday and Wednesday, 5.10 p. m.

2. Principles of Education.

This course on the principles of Education will undertake a study of education with a view to understanding the work of the school and the mental and social factors in individual development.

In the first half-year attention will be given to secondary education; in the second half-year, to the social aspects of education.

Professor BUCHNER. Monday and Wednesday, 4.10 p. m.

3. The Sub-Normal Child and Its Training.

This course, consisting of ten lectures and clinical demonstrations (October to January), will study the various conditions, both individual and social, underlying defective mental development. The clinical material will offer opportunity for systematic examinations of children, including an application of intelligence tests and a full discussion of the questions involved in the various abnormalities. The course will consider the principles of training such children, and also the special problems confronting social workers and those who teach backward children.

Lecture Room, Phipps Psychiatric Clinic, Johns Hopkins Hospital.

Dr. CAMPBELL. Saturday, 9 to 11 a. m.

English

1. English Composition.

This course will include the theory of diction, structure, and the forms of prose composition, with some critical study of selected prose writers. Weekly themes will be required; these will be returned with written criticisms.

Dr. MYERS. Tuesday and Thursday, 5.10 p. m.

2. Oral English.

This course will consist of the study and practice of English Composition for oral use. It will include a survey of the principles of expression, but will not be a course in elocution. Stress will be laid upon the form and structure of various types of speeches, upon the lucid explanation of assigned topics, and upon the apt and ready choice of words. The enrollment will be limited to fifteen.

Associate Professor French. Tuesday and Thursday, 5.10 p. m.

3. English Literature.

A study of the greater poets and prose writers of the Victorian age, exclusive of the novelists. During the first half-year the emphasis will be upon Tennyson and Carlyle; during the second, upon Browning, Arnold, and Ruskin.

Professor Gay. Wednesday and Friday, 5.10 p. m.

French

1. French Elements.

   a. The Essentials of Grammar: Fraser and Squair, *French Grammar.*

   b. French Texts: Dumas, *le Chevalier de Maison-Rouge;* Labiche, *la Grammaire;* About, *la Mère de la marquise;* Augier, *le Gendre de M. Poirier;* Daudet, *Contes;* Molière, *L'Avare;* Bowen, *French Lyrics.*

This course is planned for students who begin the study of French. Upon the successful completion of the course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the elementary requirements in French.

Professor Shefloe. Tuesday and Thursday, 5.10 p. m.; Saturday, 9 a. m.

2. A course in French reading, grammar, and composition, for students who have had the equivalent of Course 1.

The texts read will be chosen from the nineteenth century, with one or two classics of the seventeenth. The course will be given two hours or three a week; in the latter case the work covered should correspond to that done in the collegiate course French 1.

Collegiate Professor Brush. Tuesday, 4.10-5.50 p. m.

3. A study of the Romantic and Realistic writers of the nineteenth century. The class will read representative works by Lamartine, Hugo, Vigny, Gautier, Musset, Balzac, Dumas fils, Augier, Flaubert, Zola, Daudet, Leconte de Lisle, and Sully Prudhomme. Lectures will be given upon the life and work of these authors, and there will be regular exercises in composition and in writing French from dictation. The course will be given two hours a week.

Collegiate Professor Brush. Wednesday, 4.10-5.50 p. m.

German

1. German Elements.
    a. Vos' *Essentials of German.*
    b. Texts: Heyse, *Die Blinden;* Keller, *Kleider machen Leute;* Meyer, *Das Amulet;* Wilhelmi, *Einer muss heiraten.*

This course is adapted to those who wish to begin the study of German or who have had but a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation, and composition. Upon the successful completion of the work, the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the elementary requirements in German.

Professor Froelicher. Tuesday and Thursday, 4.10 p. m.; Saturday, 9 a. m.

2. A course similar to undergraduate German 1, consisting of modern prose readings (C. F. Meyer, von Saar, Fulda,

Keller, Sudermann), two hours weekly, and prose composition, one hour weekly.

Dr. Roulston. Tuesday and Thursday, 4.10 p. m.; Saturday, 9 a. m.

3. *a.* German Drama since 1880.

Dramas by Hauptmann, Sudermann, Hugo von Hofmannsthal, etc., will be read. *First half-year.*

b. German Lyric Poetry.

German lyric poetry will be considered in its chief phases and representatives, from Klopstock to the present time. The point of view will be that of careful literary appreciation and of the study of lyrical expression. *Second half-year.* Text-book: *The Oxford Book of English Verse.* The cheaper edition in cloth (Oxford University Press, American Branch).

Professor Wood. Monday and Wednesday, 4.30 p. m.

History

A course of lectures in the history of the Ancient Régime and the French Revolution. Collateral readings and a limited amount of source work will be required.

(In case of preference, a course in English History may be substituted.)

Professor Vincent. Tuesday and Thursday, 4.10 p. m.

Hygiene

The course in hygiene will consist of lectures and laboratory work. The principles of bacteriology will be taught by experiment, and the application of bacteriology to the modern crusade against disease and unhealthy conditions of living will be demonstrated by lectures and by field work. Emphasis will be laid upon methods of disease prevention which rely upon the destruction of the infectious agents. Special problems of sanitation, water and milk supplies, and allied topics will be considered in detail. Collateral reading will be required.

Laboratory of Hygiene, Pathological Building, Johns Hopkins Hospital.

Associate Professor FORD and Dr. LAUBACH. Saturdays, 9 to 12 a. m.

Italian

The object for the course for beginners will be to acquire a reading knowledge of modern Italian and correct pronunciation. Prose composition will begin as soon as the most elementary part of the grammar has been mastered. The following text-books will be used: Grandgent, *Italian Grammar;* Wilkins and Altrocchi, *Italian Short Stories;* Collodi, *Le Avventure di Pinocchio.*

Associate Professor SHAW. Wednesday and Friday, 5.10 p. m.

Latin

A course will be offered for the reading of the following authors: Livy (selections); Vergil, *Bucolics;* Horace, *Odes.* Students will also read privately, for examination: Cicero, *Cato Major;* Vergil, *Aeneid,* book VIII. The course will be given two or three hours a week; in the latter case, one hour a week will be given to Latin Composition, and the work covered should correspond to that done in the collegiate course Latin 1.

Collegiate Professor MUSTARD. Tuesday and Thursday, 4.10 p. m.; Saturday, 9 a. m.

Mathematics

The first part of the year will be devoted to a study of Algebra, the second part being given to an introductory course in Plane Analytic Geometry.

Pre-requisites: Elementary Algebra, Plane Geometry, Plane Trigonometry.

(In case of sufficient demand for a more advanced course, it may be given.)

Professor BACON. Tuesday and Thursday, 5.10 p. m.; Saturday, 9 a. m.

Political Economy

1. Elements of Economics.

Instruction will be offered in the elements of political economy with particular reference to current economic problems. The text-books used will be Cheyney's "Industrial and Social History of England," Ely's "Outlines of Economics."

Dr. WHITNEY. Wednesday and Friday, 5.10 p. m.

2. Social Problems.

A course designed for social workers and for students of modern social conditions who have already some acquaintance with elementary economic principles. The particular subjects to be studied will include the causes of poverty, unemployment, trade unionism, and social insurance.

Professors HOLLANDER and BARNETT. Wednesday and Friday, 5.10 p. m.

Psychology

1. Introductory General Psychology.

This is a fundamental course, necessary for students who intend to work in any branch of psychology.

Associate Professor DUNLAP. Monday and Friday, 4.10 p. m.

2. Experimental Psychology.

In this course work is arranged to suit the needs and preparation of the individual students.

Associate Professor DUNLAP. Two periods a week.

3. Social Psychology.

A study of the psychological factors involved in the behavior of individuals in social groups. Open to students who have had course 1 or its equivalent.

Associate Professor Dunlap. Two hours a week, which may be arranged as a single evening session if the class so desires.

Spanish

A course adapted to beginners and similar to undergraduate Spanish 1. Texts: Ingraham, *Brief Spanish Grammar;* Matzke, *Spanish Readings;* Alarcón, *El Capitán Veneno;* Pérez Galdós, *Doña Perfecta.*

Professor Marden. Wednesday and Friday, 4.10 p. m.

ATTENDANTS ON COLLEGE COURSES FOR TEACHERS

Hattie Josephine Adams. Baltimore. 524 *Rossiter Av.*
Eastern High School, 1891. *German III.*

Ruth A. E. Adamson. Baltimore. 1902 *Eastern Av.*
Political Economy.

Margretta H. Alford. Baltimore 2700 *N. Charles St.*
Baltimore Training School, 1904. *Study of Backward Children.*

Florence Irene Arnold. Baltimore. 2053 *Woodberry Av.*
Western High School, 1900. *English II.*

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Misses Hall's School, 1894; Johns Hopkins Hospital Training School for Nurses, 1905. *Study of Backward Children.*

John Turner Bamberger. Baltimore Co. *Fullerton Heights.*
Baltimore City College. *French II* and *German III.*

Stella Hannah Bamberger. Baltimore. 212 *Laurens St.*
Western High School. *History.*

Florence Gees Bangert. Baltimore. 2015 *N. Calvert St.*
Baltimore Teachers' Training School. *English II.*

Helen Rebecca Bealmear. Baltimore. 3111 *W. North Av.*
Western High School, 1891. *Education I.*

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Goucher College. *Psychology I.*

Elizabeth Bell Baltimore. 423 *E. Twenty-fifth St.*
Western High School, 1892. *Study of Backward Children.*

Bessie Burns Bennett. Baltimore. 106 *W. North Av.*
Southern Home School. *French III.*

Anna Bercowitz. Baltimore. 839 *Hollins St.*
Western High School. *Hygiene.*

George Oscar Blome. Baltimore. 3915 *Maine Av.*
LL. D., University of Maryland, 1914. *English I.*

Grace Halle Blondheim. Baltimore. 714 *Newington Av.*
A. B., Goucher College, 1913. *French III.*

Margaret Donaldson Boehm. Baltimore. *Roland Park.*
Roland Park School, 1912. *Political Economy.*

Kathleen Livingston Bond. Baltimore. 2941 *N. Charles St.*
Girls' Latin School, 1907. *Education I.*

Mary Elizabeth Bond. Baltimore. 2941 *N. Charles St.*
Eastern High School. *Education I.*

Gertrude Lee Boone. Baltimore. 2922 *Parkwood Av.*
Western High School, 1894. *Study of Backward Children.*

Edward Carlyle Boss. Baltimore Co. *Orangeville.*
Dickinson College. *English I.*

Nora Virginia Brainard. Baltimore. 1921 *Guilford Av.*
Western High School, 1907. *English III.*

Albert Howell Brewster. Atlanta, Ga. 1254 *N. Broadway.*
A. B., University of Virginia, 1914. *French I.*

Clara Maude Brown. Baltimore, Roland Park. 705 *Gladstone Av.*
Maryland State Normal School (Balt.), 1890. *History.*

Stella Elizabeth Brown. Baltimore Co. *Overlea.*
Reisterstown High School, 1897. *Political Economy.*

Agnes Emilie Buchholz. Baltimore. 748 *Reservoir St.*
Western High School. *French I.*

Mary A. T. Bunworth. Howard Co. *Ellicott City.*
Maryland State Normal School (Balt.), 1886. *French III.*

Elizabeth Jenkins Burlingame. Baltimore. 821 *N. Charles St.*
New York State College for Teachers, 1905. *English II.*

Laura Laurenson Byrne. Howard Co. *Ellicott City.*
A. B., Bryn Mawr College, 1912. *Education II.*

Leonora Ella Carpenter. Baltimore. 1317 *Park Av.*
Western High School. *History.*

Ethel Jean Church. Baltimore. 1514 *Division St.*
Western High School, 1905. *English II.*

Sara Hines Claiborne. Baltimore. 26 *S. Broadway.*
Edgeworth School. *French III.*

Helen Clark. Baltimore. 1118 *N. Charles St.*
Bryn Mawr School, 1914. *English II.*

M. Isabella Clark. Baltimore. 1123 *Madison Av.*
Mt. St. Agnes College. *Psychology I.*

Mattie Estelle Coale. Baltimore. 1123 *Madison Av.*
Tome Institute, 1906. *Hygiene.*

Mary J. Codling Baltimore. 1713 *Bolton St.*
Baltimore Teachers' Training School, 1909. *Study of Backward Children.*

Anabel Jackson Copeland (Mrs.) Baltimore. 108 *S. Stricker St.*
Girls' Latin School. *English I and History.*

Margaret Mary Corrigan. Stamford, Conn. 3538 *Old Frederick Rd.*
University of Maine. *Education I.*

Anna Cecilia Crady. Baltimore. 711 *St. Paul St.*
English II.

Isabelle Gresham Crane. Baltimore. 211 *Mosher St.*
Baltimore Teachers Training School, 1914. *English I.*

Sarah D. Crane. Baltimore. 211 *Mosher St.*
Girls' Latin School. *Education I.*

Grace Hay Cromer. Baltimore. 1820 *Edmondson Av.*
Western High School. *English I.*

Ida Curtiss. Baltimore. 1524 *Park Av.*
Goucher College. *French II.*

Martha Juliet Dittus. Baltimore. 2118 *Bolton St.*
Western High School, 1895. *English II.*

Hannah H. Dorrittee. Baltimore Co. *Raspeburg.*
Eastern High School, 1879. *Study of Backward Children.*

Ann Doyle. Baltimore. 1227 *N. Gay St.*
St. John's Female Academy (Balt.). *Hygiene.*

Nanna Duke Dushane. Baltimore. *Roland Park.*
French III.

Lulu Ellingsworth. Baltimore. 2910 *Clifton Av.*
Maryland State Normal School (Balt.), 1903. *French I.*

Frances Evans. Baltimore. 845 *Hamilton Ter.*
French III.

Helen Isabella Eyler. Baltimore. 3416 *Mondawmin Av.*
Western High School, 1905. *Education I.*

Anna Farnen. Baltimore. 3410 *Bateman Av.*
Baltimore Teachers Training School, 1911. *English III.*

Mabel Cornelia Firor. Baltimore. 715 *Newington Av.*
Western High School, 1910. *Education II.*

Roberta Tousey Fletcher. Washington, D. C. 1822 *Vernon St.*
Berlin, Germany, 1903. *Study of Backward Children.*

Bernard Joseph Flynn. Baltimore. 2500 *Ellamont St.*
English I.

Ella Maria French. Baltimore. *Haywood Park.*
Baltimore Teachers Training School, 1909. *English I.*

Agnes Frisius. Anne Arundel Co. *Annapolis.*
French II.

Rosalie Elizabeth Gardner. Baltimore. 5 *W. Twenty-ninth St.*
Western High School, 1893. *French III.*

Elizabeth Matilda Gebhardt. Baltimore. 1128 *W. Baltimore St.*
Western High School, 1912. *Education I.*

Anne Everett George. Washington, D. C. 1822 *Vernon St.*
Goucher College; Montessori Course, Rome. *Study of Backward Children.*

Elisabeth Gilman. Baltimore. 513 *Park Av.*
French III; Psychology II.

Branford Clay Gist. Baltimore. 2023 *E. North Av.*
Education I.

Mary Ellen Green. Baltimore. 114 *N. Lakewood Av.*
Baltimore Teachers Training School, 1914. *French I.*

Elizabeth Greene. Greenfield, Mass. *Johns Hopkins Hospital.*
A. B., Smith College, 1913. *Political Economy.*

Gladys Houston Greiner. Baltimore. 209 *Club Rd., Roland Pk.*
Bryn Mawr School. *English I.*

Edna Linsley Gressitt (Mrs.) Tokyo, Japan. 2410 *Linden Av.*
L. B., University of California, 1906. *Education II.*

James Fullerton Gressitt. Tokyo, Japan. 2410 *Linden Av.*
A. B., Johns Hopkins University, 1906. *Education I and II.*

Mary Agnes Grogan. Baltimore. 1108 *E. Twentieth St.*
Maryland State Normal School (Balt.), 1912. *English II.*

Ellen Kate Gross. Baltimore. 916 *E. North Av.*
A. B., Goucher College, 1910. *Study of Backward Children.*

Caroline Elsie Grote. Baltimore. 1045 *Myrtle Av.*
Baltimore Teachers Training School. *English II.*

Hazel Francis Gwynn. Prince George's Co. 632 *N. Carrollton Av.*
Baltimore Teachers Training School, 1914. *English I.*

Klein Kinzer Haddaway. Baltimore. 2504 *Garrison Av.*
LL. B., University of Maryland. *English I.*

Anna Hoffman Hall (Mrs.) Baltimore. 2004 *N. Charles St.*
A. B., Goucher College, 1899. *Education II.*

Florence Jane Hanna. Baltimore. 1015 *Linden Av.*
Goucher College. *English III.*

Katharine Loretta Healy. Baltimore. 3817 *Clifton Av.*
Baltimore Teachers Training School, 1909. *English III.*

Marie Virginia Heaphy. Baltimore. 325 *E. Twenty-Second St.*
Baltimore Teachers Training School, 1912. *English III.*

Bessie V. Hearn Baltimore Co. *Govans.*
Study of Backward Children.

Eleanor Cecilia Heavey. Howard Co. *Ellicott City.*
Maryland State Normal School (Balt.), 1890. *French III.*

Gene Herbert. Stevensville, Md. 1110 *N. Charles St.*
Stevensville High School, 1913. *Education I.*

Gulielma G. K. W. Hewes. Baltimore. 210 *W. Twenty-fifth St.*
St. Timothy's School. *Hygiene.*

Leah Eleanora Hildebrandt. Baltimore. 410 *E. Twenty-second St.*
Western High School, 1909. *English II.*

Mary Elizabeth Holland. Baltimore. 3309 *Windsor Mill Rd.*
Maryland State Normal School (Balt.), 1906. *French II.*

Mary Cecelia Hopkins. Baltimore. 1531 *Linden Av.*
Girls' Latin School. *Political Economy.*

Mary Bingley Hostetter. Hanover, Pa. 1110 *N. Charles St.*
Hanover High School. *Education I.*

Robert Wright Houseal. Newberry, S. C. 1612 *E. Biddle St.*
A. B., Newberry College, 1911; A. M., University of Virginia, 1913. *French I.*

Philena Martenet Hutton. Kingsville, Md. 1812 *N. Calvert St.*
Johns Hopkins University (Summer Session), 1914. *English II and Psychology I.*

Florence Gove Ingham. Baltimore. 1921 *Bentalou St.*
Western High School, 1913. *Education I.*

Bertha Estelle Johnson. Baltimore. 2408 *Madison Av.*
Western High School, 1898. *English III.*

Sylvia Lloyd Johnson. Masontown, Pa. 533 *N. Wolfe St.*
A. B., Goshen College (Ind.), 1914. *French I.*

Isabelle Meldrum Johnstone. Baltimore. 2043 *Kennedy Av.*
Baltimore Teachers Training School. *English III.*

Kenneth B. Jones. Baltimore Co. *Owing's Mills.*
M. D., University of Maryland, 1911. *Study of Backward Children.*

Rosina Coblens Joseph. Baltimore. 1513 *Eutaw Place.*
Baltimore Teachers Training School, 1905. *English II.*

Clay Talbott Joyce. Baltimore Co. *Cockeysville.*
Maryland State Normal School (Balt.), 1896. *Education II.*

Lutie Marguerite Keech. Baltimore. 2425 *N. Calvert St.*
Baltimore Teachers Training School, 1912. *History.*

Sarah Augusta Kemp. Baltimore. 839 *Harlem Av.*
English III.

James Patterson Kerr. Baltimore. 1037 *N. Eutaw St.*
Deichmann Preparatory School. *Political Economy.*

Margaret Kirwan. Baltimore. 1800 *Park Av.*
Western High School, 1914. *English I.*

Marguerite Fredericka Klein. Baltimore. 2311 *N. Calvert St.*
Western High School, 1908. *Education II.*

Bessie Klinesmith. Baltimore. 1524 *N. Broadway.*
English II.

Augusta Klotz. Baltimore. 1905 *Thomas Av.*
Western High School, 1900. *Education I.*

Grace Amanda Kramer. Baltimore. 319 *E. Twenty-fifth St.*
French II.

Mary Elizabeth Krekel. Baltimore. *Samuel Ready School.*
Samuel Ready School, 1900. *German III.*

Tillie Laubheimer. Baltimore. 1408 *Mt. Royal Av.*
Study of Backward Children.

Mary Elizabeth Lent. Baltimore. 1123 *Madison Av.*
Keeble College (N. Y.). *Hygiene.*

Pamela Elizabeth Littig. Baltimore. 227 *W. Lafayette Av.*
Western High School, 1914. *English I.*

Hilda Louis. Baltimore. 808 *Newington Av.*
Eastern High School, 1894. *English II.*

Blanche Landen MacCarthy. Baltimore. 2052 *Linden Av.*
Western High School. *Psychology II.*

Alice Malone. Baltimore. 144 *W. Lanvale St.*
A. M., University of Michigan, 1908. *Psychology I.*

Elizabeth Malooly. Baltimore. 1002 *E. Preston St.*
Eastern High School, 1884. *English II.*

Natha Annette Mann. Baltimore. 2213 *Edgemont Av.*
Baltimore Teachers Training School, 1908. *English II.*

Amy Russell Manning. Baltimore. 918 *N. Calvert St.*
Bryn Mawr School, 1911. *French III.*

Mabel Elizabeth Marshall. Baltimore. 1128 *Myrtle Av.*
Baltimore Teachers Training School, 1912. *English I.*

Virginia McGaw. Baltimore. 602 *Lennox St.*
Western High School, 1881. *Study of Backward Children.*

Harvey T. McLaughlin. Baltimore. 501 *N. Gilmor St.*
Baltimore Polytechnic Institute, 1914. *English I.*

Ina Craig McMullen. Baltimore. 1039 *W. Lanvale St.*
Columbia and Johns Hopkins Universities (Summer Sessions). *English 2; Psychology I.*

Minnie V. Medwedeff. Baltimore. 3916 *Park Hgts. Av.*
Baltimore Teachers Training School. *English I.*

Annie Gertrude Melvin. Baltimore. 725 *N. Fremont Av.*
Maryland State Normal School (Balt.), 1899. *French I.*

Ethel Bailey Melvin. Baltimore. 725 *N. Fremont Av.*
English III.

Annie Catherine Meushaw. Baltimore Co. *Winston Av., Govans.*
History.

Allison Janney Miller. Baltimore. *Severn Apartments.*
Edgeworth School. *Psychology I.*

Persis K. Miller. Baltimore. *School No.* 76.
Study of Backward Children.

Youel Benjamin Mirza. Urumia, Persia. 716 *Park Av.*
A. M., Johns Hopkins University, 1914. *French I.*

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Eastern High School, 1894. *English II.*

Katherine Anna Mühlbach. Baltimore Co. *Westport.*
Maryland State Normal School (Balt.), 1900. *German III.*

Mary Cleland Nelson. Baltimore Co. *Riderwood.*
French III.

Mary Francis Neudecker. Baltimore. 123 *W. Twenty-second St.*
Baltimore Teachers Training School. *English III.*

Ida Neumann. Baltimore. 1405 *N. Central Av.*
Eastern High School. *English I and II.*

Elizabeth Nickel. Baltimore. 2911 *Belmont Av.*
English III.

Mabel Audoun North. Baltimore. 1802 *N. Milton Av.*
Baltimore Teachers Training School, 1912. *English I.*

Fred Cheffins Numbers, Jr. Baltimore Co. *Overlea.*
English III.

Mabel Nusbaum. Clarksburg, W. Va. 1629 *Madison Av.*
Baltimore Teachers Training School, 1913. *English I.*

Willie Adele O'Neill. Rising Sun. 230 *N. Carey St.*
Western High School, 1895. *English II.*

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Political Economy. 325 *Woodlawn Rd., Roland Park.*

Emily Bond Owings. Baltimore. 1215 *John St.*
Arundell School, 1908. *Political Economy.*

Eleanor F. Parker. Baltimore.
Education I. 202 *Ashland Av., Roland Park.*

Grace Dudrea Parker (Mrs.) Baltimore. 913 *St. Paul St.*
English III.

Martha Patterson. Baltimore. 1925 *Linden Av.*
Goucher College. *English II.*

Edward Everett Perkins, Jr. Prince George's Co. *Springfield.*
Washington High School. *French II.*

Elizabeth Blanchard Randall. Baltimore Co. *Catonsville.*
St. Timothy's School. *Political Economy and Psychology II.*

Evelyn Barton Randall. Baltimore Co. *Catonsville.*
English II.

Rosamond Harding Randall. Baltimore. 1127 *St. Paul St.*
Bryn Mawr School. *English II.*

Elias Hilton Read. Baltimore Co. *Parental School.*
Study of Backward Children.

Elizabeth Reddington. Baltimore. 1342 *Harford Av.*
Baltimore Teachers Training School, 1912. *English I.*

Martin Arnold Roberts. Baltimore. 2841 *St. Paul St.*
Leechburg (Pa.) High School. *History.*

Sarah Lucy Roche. Baltimore. 1815 *E. Lombard St.*
English II.

Martha Margaret Rohn. Baltimore. 1831 *Aisquith St.*
Baltimore Teachers Training School, 1913. *English I.*

Anna Hertha Rothe. Baltimore. 1216 *Harford Av.*
Baltimore Teachers Training School, 1913. *English I and History.*

Ellen Kathrine Rothe. Baltimore. 1216 *Harford Av.*
Eastern High School, 1908. *French II and Political Economy.*

Anna Marie Rue. Baltimore. 1604 *Harlem Av.*
Study of Backward Children.

Anita Marie Sauer. Baltimore. 1803 *Mosher St.*
Western High School. *English I.*

Isabelle Schultz. Baltimore. 1910 *Park Av.*
Western High School, 1914. *English I.*

Mary Myrtle Selby. Sellman, Md. 1123 *Madison Av.*
Cedar Bend School (Md.). *English I.*

Anna Shamberger. Baltimore. 2623 *Guilford Av.*
Maryland State Normal School (Balt.), 1904. *English II.*

Esther Jane Shamberger. Baltimore. 2623 *Guilford Av.*
Maryland State Normal School (Balt.), 1899. *French I.*

Helen Sherbert. Baltimore. 1800 *N. Calvert St.*
Western High School, 1900. *Hygiene.*

Evelina C. Simon. Baltimore. 210 *W. Twenty-fifth St.*
A. B., Goucher College, 1898; A. M., Columbia University, 1899. *History.*

Anna Adella Simonds. Baltimore. 1308 *N. Caroline St.*
Eastern High School, 1894. *Study of Backward Children.*

Margaret Skirven. Baltimore. 3900 *Cottage Av.*
Western High School. *Education I.*

EUGENE RANDOLPH SMITH. Baltimore 1509 *Mondawmin Av.*
A. B., Syracuse University, 1896; A. M., 1898. *Study of Backward Children.*

ELIZABETH ANNA SMYTH. Baltimore. 1206 *Bolton St.*
Western High School. *English II.*

HELEN GROSVENOR SMYTH. Baltimore. 1206 *Bolton St.*
Western High School. *Study of Backward Children.*

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Johns Hopkins University. *Hygiene.*

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Psychology I.

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Baltimore Teachers Training School. *Political Economy.*

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A. B., Johns Hopkins University, 1913. *Education I and II.*

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Roland Park Country School, 1912. *English II.*

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Clifton Forge High School (Va.), 1890. *Psychology I.*

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Baltimore Teachers Training School. *English II.*

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Western High School. *English II.*

HELEN STROMBERG. Baltimore. 2339 *Madison Av.*
Western High School, 1893. *English II.*

MARTHA STROMBERG. Baltimore. 2339 *Madison Av.*
Western High School, 1887. *English II.*

ALICE HANK STROTHER (Mrs.) Baltimore. 2412 *Chelsea Terrace.*
Western High School, 1874. *Study of Backward Children.*

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Western High School, 1904. *French I.* 17 *W. Twentieth St.*

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Baltimore Teachers Training School. *Political Economy.*

EDNA PHRONIA TROLL. Baltimore. 3807 *Clifton Av.*
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Maryland State Normal School (Balt.). *German III.*

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St. Luke's Hall. *Political Economy.*

Emma France Ward. Baltimore. 4210 *Main Av.*
A. B., Goucher College, 1909. *Political Economy.*

Louis Weissing. Baltimore. 2054 *E. Federal St.*
Baltimore Polytechnic Institute, 1914. *English I.*

Elizabeth Genevieve White. Baltimore. 2446 *Maryland Av.*
Western High School, 1900. *Education II.*

Virginia Wightman. Baltimore. 1412 *Linden Av.*
Eastern High School. *English III.*

Ellen Cecilia Wilhelm. Baltimore. 2004 *Walbrook Av.*
Maryland State Normal School (Balt.), 1906. *French II.*

Margaretta W. Williams. Baltimore. 1128 *Cathedral St.*
French III.

Ruth Wilson. Baltimore. 1431 *Edmondson Av.*
Western High School, 1907. *Political Economy.*

Caroline Wood. Baltimore. *W. Forty-first St.*
Miss Porter's School (Conn.). *French III.*

Margaret Wood. Baltimore. 1529 *Bolton St.*
Miss Porter's School (Conn.). *French III.*

Barbara Bee Woodruff. Potsdam, N. Y. 2016 *Brookfield Av.*
Potsdam (N. Y.) Normal Training School, 1912. *English I.*

Mary Margaret Wootton. Baltimore. 1512 *Linden Av.*
Western High School. *Political Economy.*

Mary Isabelle Wyman. Baltimore. 3003 *Matthews Av.*
Eastern High School. *English II.*

Roder Estill Yager. San Juan, P. R. 802 *N. Bdway.*
B. S., Georgetown College (Ky.), 1913. *French I.*

(189)

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The Piscatory Eclogues of Jacopo Sannazaro. By W. P. Mustard. 94 pp. 8vo. $1.

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Four Phases of American Development—*Federalism, Democracy, Imperialism, Expansion.* By J. B. Moore. 218 pp. 12mo. $1.50.

The Diplomacy of the War of 1812. By F. A. Updyke. 504 pp. 12mo. $2.50.

An Outline of Psychobiology. By Knight Dunlap. 121 pp. 77 cuts. Royal 8vo. $1.25.

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JOHNS HOPKINS
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COLLEGE COURSES FOR TEACHERS

1916-1917

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CALENDAR, 1916-17

General Assembly, Saturday, October 7, 10 a. m. (Donovan Room, Academic Building, Homewood).

College Courses for Teachers begin Monday, October 9, 1916.

Thanksgiving Day falls on Thursday, November 30, 1916. All classes suspended.

The Christmas Recess begins Saturday, December 23, 1916.

Exercises will be resumed on Wednesday afternoon, January 3, 1917.

Mid-year Examinations, February 1, 1917.

Commemoration Day falls on Thursday, February 22, 1917. All classes suspended.

The Spring Recess begins Thursday morning, April 5, and closes Wednesday evening, April 11, 1917.

College Courses for Teachers close Saturday, May 26, 1917.

COLLEGE COURSES FOR TEACHERS

OFFERED BY

THE JOHNS HOPKINS UNIVERSITY

AND

GOUCHER COLLEGE

1916-1917

BALTIMORE
The Johns Hopkins Press
1916

COMMITTEE IN CHARGE OF THE COLLEGE COURSES FOR TEACHERS

EDWARD F. BUCHNER, *Chairman,* Director and Professor of Education.

ELEANOR L. LORD, Dean of the Faculty and Professor of History, Goucher College.

HENRY WOOD, Professor of German.

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up by those *not previously registered* and returned to the Director on or before October 2, 1916.

Professor Buchner may be found in Room 217 in the Academic Building at Homewood, daily from September 23 tc September 30 (3-5 p. m., Monday to Friday; 10. a. m., Saturday).

INSTRUCTORS

Henry Wood, Ph. D. Professor of German.	*German*
Jacob H. Hollander, Ph. D. Professor of Political Economy.	*Social Problems*
C. Carroll Marden, Ph. D. Professor of Spanish.	*Spanish*
Wilfred P. Mustard, Ph. D. Collegiate Professor of Latin.	*Latin*
Edward F. Buchner, Ph. D. Professor of Education.	*Education*
Edward C. Armstrong, Ph. D. Professor of the French Language.	*French*
George E. Barnett, Ph. D. Professor of Statistics.	*Statistics*
Murray P. Brush, Ph. D. Collegiate Professor of French.	*French*
David M. Robinson, Ph. D. Professor of Classical Archæology and Epigraphy.	*History of Art*
J. Elliott Gilpin, Ph. D. Collegiate Professor of Chemistry.	*Chemistry*
William W. Ford, M. D. Associate Professor of Hygiene and Bacteriology.	*Hygiene*
James E. Shaw, Ph. D. Associate Professor of Italian.	*Italian*
Knight Dunlap, Ph. D. Professor of Experimental Psychology.	*Psychology*
B. Franklin Lovelace, Ph. D. Associate Professor of Chemistry.	*Chemistry*
John C. French, Ph. D. Associate Professor of English.	*English*
C. Macfie Campbell, M. D. Associate Professor of Psychiatry.	*Psycho-Pathology*
Robert B. Roulston, Ph. D. Associate in German.	*German*

CHILTON L. POWELL, Ph. D. *English*
Instructor in English.

CHARLES A. LAUBACH, M. D. *Hygiene*
Assistant in Hygiene and Bacteriology.

NATHANIEL R. WHITNEY, Ph. D. *Political Economy*
Instructor in Political Economy.

FLORENCE E. BAMBERGER, A. M. *Education*
Instructor in Education.

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Instructor in Spanish.

KEMPER SIMPSON, A. B. *Life Insurance*
Assistant in Life Insurance.

HANS FROELICHER, Ph. D. *German and History of Art*
Professor of German Language and Literature and of Art Criticism in Goucher College.

JOSEPH S. SHEFLOE, Ph. D. *French*
Professor of Romanic Languages in Goucher College.

ROBERT M. GAY, A. M. *English*
Professor of English in Goucher College.

CLARA L. BACON, Ph. D. *Mathematics*
Professor of Mathematics in Goucher College.

KATHARINE J. GALLAGHER, Ph. D. *History*
Instructor in History in Goucher College.

COLLEGE COURSES FOR TEACHERS

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work has been done without any reference to credit toward an academic degree.

Goucher College has also offered without reference to academic credit special courses of instruction and lectures open to teachers of Baltimore in an effort to serve a larger constituency than its regular students.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with Goucher College, has offered since 1909 courses of instruction to teachers and others whose vocations prevent their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1916-1917. It is the primary aim of these courses to provide teachers in public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in the academic department. In order to give further encouragement to teachers in service to carry on extended systematic study, this plan of college courses for teachers also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degrees of Bachelor of Arts and Bachelor of Science.

Persons other than teachers will, as in the past, be admitted to these courses. They will be expected to present the proper qualifications for the subjects and courses they desire to pursue.

ADMISSION

The preparatory training desirable for the successful pursuit of these courses is that represented by the completion of a standard four-year high school course. In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course. Persons may be admitted to the courses either with or without reference to the baccalaureate degrees.

THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered by the Johns Hopkins University to both men and women completing the required courses of study in the College Courses for Teachers and in the Summer Courses in accordance with the following regulations.

Those who wish to become candidates for the degree of Bachelor of Science must present evidence of having successfully completed courses of study equivalent to the graduating requirements of a standard four-year high school. This evidence may be offered by either of the following means:

1. Presenting certificates:
   (a) Of graduation from a secondary school having a course of study of four years, and approved by the Committee on Matriculation.
   (b) Of the College Entrance Examination Board, or other approved examining boards.

2. Passing an examination.

Fifteen units of secondary instruction are required for matriculation, of which nine are prescribed and six are elective. The subjects in which the prescribed units must be offered are:

> English (*three*), History (*one*), Mathematics (Algebra and Geometry, *two*), a Modern Foreign Language (*two*), Science (*one*).

The remaining six units may be offered by election from the following group, the number of additional units accepted in the several prescribed subjects being indicated in parentheses:

> Domestic Science (*one*) or Manual Training (*one*), Drawing (*one*), History (*one*, or *two*), Latin (*two*, or *three*, or *four*), Mathematics (*one*, or *one and a half*), Modern Foreign Language (*two* or *three*, or *four*), Science (*one*, or *two*).

Advanced standing may be granted to applicants who offer approved collegiate or professional courses in a college, scientific school, normal school, training school, or technical school in advance of high school graduation.

The course of study enabling the candidate to meet the graduation requirements is made flexible so as to permit a choice of courses in various subjects, within limits, in accordance with the future work of the student.

The requirements are:

1. A series of subjects required of all matriculated students, namely:

English, two courses; Foreign Languages, three courses in at least two languages; History, one course; Science, one course.

2. A major consisting of three courses in one subject, and of two courses in one or two cognate subjects. Required courses may not be counted as part of the work in the major.

3. Electives sufficient to complete the requirement of one hundred and twenty points.

All candidates for the degree must complete a minimum of twenty-four points in the College Courses for Teachers. The maximum credit allowed a student in one summer session is eight points.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. These courses will be open to men and women alike, and will be carried on independently of the regular collegiate instruction of the institutions. In the case of women who may desire to become candidates for the degree of Bachelor of Arts, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the academic department of the Johns Hopkins University in the case of those men who desire to proceed to the degree of Bachelor of Arts.

The instruction will be conducted as far as possible at the Johns Hopkins University. In some instances, classes and laboratory exercises may be held at Goucher College.

THE DEGREE OF BACHELOR OF ARTS

Those who wish to become candidates for the degree of Bachelor of Arts in this University are referred to the circular descriptive of The College of Arts and Sciences of the Johns Hopkins University, 1916, for a detailed statement of the requirements for matriculation. This circular may be had by addressing the Registrar.

Those who desire to become candidates for the same degree in Goucher College are referred to the Announcements for 1916-17, for a detailed statement of the corresponding requirements in that institution. This circular may be had by addressing the Registrar of the College.

As a final requirement before this degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree is conferred by the Johns Hopkins University upon men only.

EXPENSES

The charge for instruction is ten dollars per year for each hour per week. Each course will continue throughout the academic year, except as otherwise stated. Where laboratory fees are required they are additional. From two to three hours of laboratory work will be charged as one hour of recitation or lecture. The special fee for Education 3 is seven dollars.

Fees are payable in semi-annual instalments, in October and February, at the office of the Treasurer of the Johns Hopkins University, Academic Building. Before payment of fees can be made, applicants must receive from the Registrar a card stating the courses to be taken.

The fee for matriculation as a candidate for the degree of Bachelor of Science is $5. The fee for graduation is $5, payable before the delivery of the diploma.

SESSION

The courses will open on Monday, October 9, 1916, and close on Saturday, May 26, 1917. Each course will include instruction for thirty weeks. Class-room and laboratory exercises will be given in the afternoon and evening from Monday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual University recesses at Thanksgiving, Christmas, and Easter.

Applications for admission are to be filed with the Director on or before October 2, 1916.

SCHEDULE OF HOURS

It is expected that the classes will be held in the new buildings at Homewood; the laboratory work in chemistry will be given in the old building, Druid Hill and Linden Avenues. In view of the readjustments incident to the University's removal to its new site, the complete schedule of hours can not be arranged prior to the opening of the courses on October 9. In addition to the usual afternoon and Saturday forenoon schedule, efforts will be made to complete arrangements whereby a number of classes can be held in the evenings at 7.30 or 8 o'clock. The courses for which this plan may be carried out have been indicated in the statements, respectively. Changes in the schedule may be made at the opening in order to meet the convenience of students.

THE COURSES OF INSTRUCTION

Any course for which there are fewer than ten applicants may be withdrawn. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of, or other than, those mentioned below, an effort will be made to arrange for such instruction.

The exact amount of credit towards the degrees of Bachelor of Arts and Bachelor of Science, which will be allowed for successful completion of each of the following courses, can be determined definitely only at the end of the year.

Art

A. Ancient Art.

A general outline of ancient architecture, sculpture, and painting with some attention to the minor arts and to drawing as seen on vases. The development of the different branches of ancient art from prehistoric times will be systematically considered and their influence on later art emphasized. Lectures illustrated by slides, photographs, casts and original antiquities. Reports and required reading for credit. Books recommended: Reinach's Apollo (Scribner's Sons, New York, 1909, $1.50); Fowler-Wheeler, Greek Archaeology (New York, 1909, $2.00), Strong's Roman Sculpture (London, 1911, $3.00).

Professor Robinson. Two hours a week, first half-year.

B. Mediaeval and Modern Art.

History of the development of Mediaeval, Renaissance, and Modern Architecture, Sculpture and Painting. Lectures, recitations, reports on assigned topics. Text book: Reinach's Apollo.

Professor Froelicher. Two hours a week, second half-year. (An evening session of two hours may be arranged).

Chemistry

No previous knowledge of chemistry is required. The class-room work will comprise lectures illustrated by experiments and will be supplemented by occasional condensed reviews written at home. The work is based on Remsen's "Chemistry" (Briefer Course) and will cover the field of inorganic chemistry as far as possible. In the laboratory students will repeat experiments chosen from those performed in the class-room, and will make simple inorganic preparations. Two hours class-work, three hours laboratory work weekly. (Lectures at Homewood; laboratory work in the old building.)

A laboratory fee of $5.00 will be charged to cover the cost of chemicals. This fee does not include apparatus, which is loaned with charge for breakage only. (The minimum expense for breakage has been $1.63; the average $3.00.)

Collegiate Professor GILPIN and Associate Professor LOVELACE. Tuesday and Thursday, 5.10 p. m.; Saturday, 10 a. m. to 1 p. m.

Education

1. History of Education.

The course offered will present in outline the history of Education, tracing the development of those ideas, practices and institutions of the past which have been most effective in determining the essential features and problems of education in the present. The work is based on Monroe's "Textbook in the History of Education."

Professor BUCHNER. Monday and Wednesday, 5.10 p. m.

2. Educational Psychology.

This course will treat of mental development and the psychological basis of educational theory and practice, and include the special psychology of interest, work, practice, childhood and adolescence, and the various school subjects. A survey of the recent studies in educational psychology will be made.

Professor BUCHNER. Friday, 4.10-5.50 p. m.

3. The Sub-Normal Child and Its Training.

This course, consisting of ten lectures and clinical demonstrations (October to January), will study the various conditions, both individual and social, underlying defective mental development. The clinical material will offer opportunity for systematic examinations of children, including an application of intelligence tests and a full discussion of the questions involved in the various abnormalities. The course will consider the principles of training such children, and also the special problems confronting social workers and those who teach backward children.

Lecture Room, Phipps Psychiatric Clinic, Johns Hopkins Hospital.

Dr. CAMPBELL. Saturday, 9 to 11 a. m.

4. Secondary Education.

This course will consider the historical development of secondary education and the important present-day problems in this field, including organization and curriculum, relation to elementary and collegiate education, psychology of secondary subjects and general method of instruction. Stated reports will be required, based on observation of class-room and other high school activities.

Professor BUCHNER. Monday and Wednesday, 4.10 p. m.

5. Elementary Education.

This course includes the study of the principles and aims underlying elementary education. Among the topics to be discussed are: an examination of the social needs for subject-matter in each of the school subjects, the organization of the problems and materials of this subject-matter in response to the mental development of pupils, the classification of pupils and provision for individual differences, formulating of programs, proper methods of study, and measuring the results of teaching.

For those interested in problems of supervision, a third period may be arranged, in which additional topics will be considered: general principles underlying the criticism of instruction, standards for judging instruction, and the basic principles of curriculum making. The work in supervision is an optional additional hour, and may be offered for extra credit.

Recitations will be observed with regard to method followed and the conduct of study periods will receive attention. Reports based on the observation of class-room work will be handed in from time to time.

Miss BAMBERGER. Saturday, 9-10.45 a. m.

English

1. English Composition.

This course will include the theory of diction, structure, and the forms of prose composition, with some critical study of selected prose writers. Weekly themes will be required; these will be returned with written criticisms.

Dr. POWELL. Tuesday and Thursday, 5.10 p. m.

2. English Literature.

A study of Late Victorian Literature, beginning with Ruskin. During the first term the emphasis will be upon Ruskin, the prose of Matthew Arnold, and Pater; during the second, upon Newman, Morris, and Swinburne.

Professor GAY. Wednesday and Friday, 5.00 p. m. (An evening session of two hours may be arranged.)

3. American Literature.

This course will consist primarily of a critical study of the writings of American authors, classified according to literary form rather than according to chronology. Stress will be laid upon the works more commonly used by teachers in elementary and secondary schools, and the writings of contemporary authors will not be excluded.

Associate Professor FRENCH. Tuesday and Thursday, 5.10 p. m. (An evening session of two hours may be arranged.)

French

1. French Elements.

a. Grammar:—Fraser and Squair, *Shorter French Course.*

b. French Texts:—Dumas, *Le Chevalier de Maison-Rouge;* Labiche et Martin, *Le Voyage de Monsieur Perrichon;* About, *La Mère de la Marquise;* Augier et Sandeau, *Le Gendre de Monsieur Poirier;* Daudet, *Contes;* Molière, *L'Avare, Le Bourgeois Gentilhomme;* Balzac, *Eugénie Grandet;* Daniels and Travers, *Poèmes et Chants de France.*

This course is planned for students beginning the study of French. It includes pronunciation, composition, and translation. Upon the completion of the course the student receives credit if offered as college work; if offered for matriculation, it absolves the requirements in French.

Professor SHEFLOE. Tuesday and Thursday, 5.10 p. m.; Saturday, 9 a. m.

2. A course in French reading, grammar, and composition, for students who have had the equivalent of Course 1. The texts read will be chosen from modern authors, and the exercises in composition will be of a practical nature. The course will be given two or three hours a week; in the latter case the work covered should correspond to that done in the collegiate course French 1.

Collegiate Professor BRUSH. Tuesday, 4.10-5.50 p. m.

3. Seventeenth and Ninteenth Century Drama. Classic tragedy and comedy, Romantic and Realistic Schools, and contemporary plays. Lectures and reading in the history of the drama. Exercises in composition.

Professor ARMSTRONG. Thursday, 4-5.40 p. m.

German

1. German Elements.

a. Vos, *Essentials of German.*

b. Texts: Heyse, *Die Blinden;* Keller, *Kleider machen Leute;* Meyer, *Das Amulet;* Wilhelmi, *Einer muss heiraten.*

This course is adapted to those who wish to begin the study of German or who have had but a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation, and composition. Upon the successful completion of the work, the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in German.

Professor Froelicher. Tuesday, 4.10 p. m.; Saturday, 9-11 a. m.

2. One of the following courses is offered:

A. Modern Prose Readings with Exercises in Prose Composition. Such writers as Storm, Sudermann, C. F. Meyer, Arnold Schurz, etc., will be read. This course corresponds to collegiate German 1, and, if satisfactorily completed, will be credited accordingly.

or

B. Practical Exercises in Spoken and Written German. The nature of this course will depend somewhat on the previous training of those who wish to follow it. It is intended, however, primarily for those who desire to increase their knowledge of practical Modern German. Some attention will be paid to the presentation of such exercises in the class room.

Dr. Roulston. Tuesday and Thursday, 4.10 p. m.; Saturday, 9 a. m.

3. a. German Drama in the first half of the 19th Century.

Beginning with the greatest of the post-classical dramatists, H. von Kleist (*Prinz Friedrich von Homburg*), the course will include Grillparzer (*Des Meeres und der Liebe Wellen*), Hebbel (*Agnes Bernauer*), and Ludwig (*Der Erbförster*).

The passage from romanticism to realism in these dramas will be illustrated in detail, and the studies and express statements of the four authors on the development of the modern German drama will be considered. In the case of Hebbel, a comparative study of the *Agnes Bernauer* theme will be made in the dramas and dramatic fragments of Törring, Otto Ludwig, and Martin Greif. *October to February inclusive.*

b. German Lyric Poetry.

Selected poems, from Klopstock to our own period, will be studied. The method of treatment will include not only literary appreciation, but also some systematic attention to rhythmical and metrical expression. *March* 1 *to end of second half-year.*

Text-book: *The Oxford Book of German Verse*. The cheaper edition in cloth (Oxford University Press, American Branch).

Professor Wood. Monday and Wednesday, 5 p. m. (An evening session of two hours may be arranged.)

History

This course of lectures on the history of the United States, 1783-1916, is planned to give a general survey of the development and progress of American nationality. A syllabus will be provided. Collateral reading and reference to original sources will be required.

Dr. Gallagher. Tuesday and Thursday, 4.10 p. m. (An evening session of two hours may be arranged.)

Hygiene

The course in hygiene will consist of lectures and laboratory work. The principles of bacteriology will be taught by experiment, and the application of bacteriology to the modern crusade against disease and unhealthy conditions of living will be demonstrated by lectures and by field work. Emphasis will be laid upon methods of disease prevention which rely upon the destruction of the infectious agents. Special problems of sanitation, water and milk supplies, and allied topics will be considered in detail. Collateral reading will be required.

Laboratory of Hygiene, Pathological Building, Johns Hopkins Hospital.

Associate Professor FORD and Dr. LAUBACH. Saturdays, 9 a. m. to 12 m.

Italian

The object of this course for beginners will be to acquire a reading knowledge of modern Italian and correct pronunciation. Prose composition will begin as soon as the most elementary part of the grammar has been mastered. The following text-books will be used: Grandgent, *Italian Grammar;* Wilkins and Altrocchi, *Italian Short Stories;* Collodi, *Le Avventure di Pinocchio.*

Associate Professor SHAW. Wednesday and Friday, 5.10 p. m. (An evening session of two hours may be arranged.)

Latin

A course will be offered for the reading of the following authors: Livy (selections); Vergil, *Bucolics;* Horace, *Odes.* Students will also read privately, for examination, Cicero, *Cato Major;* Vergil, *Aeneid,* book VIII. The course will be given two or three hours a week; in the latter case, one hour a week will be given to Latin Composition, and the work covered should correspond to that done in the collegiate course Latin 1.

Collegiate Professor MUSTARD. Tuesday and Thursday, 4.10 p. m.; Saturday, 9 a. m.

(In case of a sufficient demand for a more advanced course, it will be given in place of the above.)

Mathematics

The first part of the year will be devoted to a study of Algebra, the second part being given to an introductory course in Plane Analytic Geometry.

Pre-requisites: Elementary Algebra; Plane Geometry.

Professor Bacon. Tuesday and Thursday, 5.10 p. m.; Saturday, 9 a. m.

(In case of a sufficient demand for a more advanced course, it may be given.)

Oriental Seminary

Attention is called to the fact that several courses in the Oriental Seminary, which presuppose no knowledge of Hebrew or Greek, are available in the late afternoons:

History of the Ancient East. Dr. Blake. Monday, 5 p. m.
History of Israel. Dr. Rosenau. Thursday, 5 p. m.
Biblical Archaeology. Mr. Russell. Thursday, 5 p. m.
The Literature of the Bible. Mr. Russell. Monday, 5 p. m.

Political Economy

1. Elements of Economics.

During the first half-year, the growth of industrial society will be examined; during the second-half year the elements of economic science with particular reference to current economic problems will be studied.

Dr. Whitney. Monday and Thursday, 5.10 p. m. (An evening session of two hours may be arranged.)

2. Social Problems.

A course designed for social workers and for students of modern social conditions who have already some acquaintance with elementary economic principles. The particular subjects to be studied will include the causes of poverty, unemployment, trade unionism, and social insurance.

Professor Hollander. Wednesday and Friday, 5.10 p. m. (An evening session of two hours may be arranged.)

3. Elements of Statistics.

After a preliminary study of the value and place of statistics as an instrument of investigation, attention is directed to the chief methods used in statistical inquiry. The illustrations of statistical methods will be drawn from the fields of education and social work.

Professor Barnett. (An evening session of two hours on Friday may be arranged.)

4. Life Insurance.

The course is designed to give to those persons engaged in the insurance business and to those students who contemplate entering the life insurance business, a description and scientific analysis of the most important aspects of the life insurance business.

Mr. Simpson. Tuesday and Thursday, 5.10 p. m.

Psychology

1. Introduction to General Psychology.

This is a fundamental course, of two or three hours a week, advisable for students who intend to work in any branch of psychology. It will consist of lectures, discussions, and assigned readings. A third period of laboratory work may be arranged for those desiring it, at times other than the regular class periods. The laboratory work is an optional additional hour, and may be offered for extra credit.

Professor Dunlap and Dr. Loring.

Two hours a week, which may be arranged as a single session on Thursday evening.

2. Experimental Psychology. In this course the work is arranged to suit the needs and preparation of individual students.

Professor Dunlap. Two periods per week.

Spanish

1. Spanish Elements.

a. De Vitis, *Spanish Grammar;* oral and written exercises.

b. Hills, *Spanish Tales for Beginners;* Alarcón, *El Capitán Veneno;* Palacio Valdés, *La Hermana San Sulpicio.*

A course intended for beginners. Upon successful completion of this course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in Spanish.

Professor Marden. Wednesday and Friday, 4.10 p. m.

2. A practical course in Spanish for those who have had the elements of the language, and who desire to gain a broader knowledge of the literature, together with facility in speaking and writing Spanish.

Dr. Buceta. Two hours a week.

(If possible, evening hours will be arranged.)

Attendants on the College Courses for Teachers, 1915-1916, 343.

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THE

JOHNS HOPKINS UNIVERSITY CIRCULAR

EDITED BY

THOMAS R. BALL

UNIVERSITY OF [illegible]
AUG 29 1917

COLLEGE COURSES FOR TEACHERS

1917-1918

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Entered, October 21, 1903, at Baltimore, Md., as second class matter, under Act of Congress of July 16, 1894

CALENDAR, 1917-18

General Assembly, Saturday, October 6, 10 a. m (Donovan Room, Gilman Hall, Homewood).

College Courses for Teachers begin Monday, October 8, 1917.

Thanksgiving Day falls on Thursday, November 29, 1917. All classes suspended.

The Christmas Recess begins Saturday, December 22, 1917.

Exercises will be resumed on Thursday afternoon, January 3, 1918.

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COMMITTEE IN CHARGE OF THE COLLEGE COURSES FOR TEACHERS

Edward F. Buchner, Director and Professor of Education, *Chairman.*

Eleanor L. Lord, Dean of the Faculty and Professor of History, Goucher College.

Henry Wood, Professor of German.

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up by those *not previously registered* and returned to the Director on or before October 1, 1917. Registration of former students should be made on or before October 5.

The Director may be found in Room 217, Gilman Hall. Homewood, daily from September 22 to September 29 (3-5 p. m., Monday to Friday; 10 a. m., Saturdays).

INSTRUCTORS

Henry Wood, Ph. D. Professor of German.	*German*
Lorrain S. Hulburt, Ph. D. Collegiate Professor of Mathematics.	*Mathematics*
Wilfred P. Mustard, Ph .D. Collegiate Professor of Latin.	*Latin*
Edward F. Buchner, Ph. D. Professor of Education.	*Education*
Murray P. Brush, Ph. D. Collegiate Professor of French.	*French*
David M. Robinson, Ph. D. Professor of Classical Archæology and Epigraphy.	*Art*
J. Elliott Gilpin, Ph. D. Collegiate Professor of Chemistry.	*Chemistry*
John H. Latané, Ph. D. Professor of American History.	*History*
Knight Dunlap, Ph. D. Professor of Experimental Psychology.	*Psychology*
John C. French, Ph. D. Associate Professor of English.	*English*
C. Macfie Campbell, M D. Associate Professor of Psychiatry.	*Psycho-Pathology*
Robert B. Roulston, Ph. D. Associate Professor of German.	*German*
William Rosenau, Ph. D. Associate in Post-Biblical Hebrew.	*Semitic Languages*
Frank R. Blake, Ph. D. Associate in Oriental Languages.	*Semitic Languages*
Henry Slonimsky, Ph. D. Associate in Philosophy.	*Philosophy*
Florence E. Bamberger, A. M. Associate in Education.	*Education*
Gustav Gruenbaum, Ph. D. Associate in Romance Languages.	*French and Spanish*
S. Edwin Whiteman Instructor in Drawing.	*Drawing*

Walter F. Shenton, Ph. D. Instructor in Mathematics.	*Statistics*
Ellis Miller, Ph. D. Instructor in Chemistry.	*Chemistry*
Chilton L. Powell, Ph. D. Instructor in English.	*English*
Erasmo Buceta, Dr. en Derecho Instructor in Spanish.	*Spanish*
David E. Weglein, Ph. D. Instructor in Education.	*Education*
Clare E. Griffin, A. B. Instructor in Transportation.	*Political Economy*
Arthur C. Millspaugh, Ph. D. Instructor in Political Science.	*Political Science*
Bird T. Baldwin, Ph. D. Lecturer in Education.	*Education*
Hans Froelicher, Ph. D. Professor of German and of Art Criticism in Goucher College.	*German and Art*
Joseph S. Shefloe,, Ph. D. Professor of Romanic Languages in Goucher College.	*French*
Robert M. Gay, Litt. D. Professor of English in Goucher College.	*English*
Clara L. Bacon, Ph. D. Professor of Mathematics in Goucher College.	*Mathematics*
Katherine J. Gallagher, Ph. D. Assistant Professor of History in Goucher College.	*History*

COLLEGE COURSES FOR TEACHERS

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work has been done without any reference to credit toward an academic degree.

Goucher College has also offered without reference to academic credit special courses of instruction and lectures open to teachers of Baltimore in an effort to serve a larger constituency than its regular students.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with Goucher College, has offered since 1909 courses of instruction to teachers and others whose vocations prevent their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1917-1918. It is the primary aim of these courses to provide teachers in public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in the academic department. In order to give further encouragement to teachers in service to carry on extended systematic study, this plan of college courses for teachers also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degrees of Bachelor of Art and Bachelor of Science.

Persons other than teachers will, as in the past, be admitted to these courses. They will be expected to present the proper qualifications for the subjects and courses they desire to pursue.

ADMISSION

The preparatory training desirable for the successful pursuit of these courses is that represented by the completion of a standard four-year high school course. In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course. Persons may be admitted to the courses either with or without reference to the baccalaureate degrees.

THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered by the Johns Hopkins University to both men and women completing the required courses of study in the College Courses for Teachers and in the Summer Courses, in accordance with the following regulations:

Those who wish to become candidates for the degree of Bachelor of Science must present evidence of having successfully completed courses of study equivalent to the graduating requirements of a standard four-year high school. This evidence may be offered by either of the following means:

1. Presenting certificates:
   - (a) Of graduation from a secondary school having a course of study of four years, and approved by the Committee on Matriculation.
   - (b) Of the College Entrance Examination Board, or other approved examining boards.
2. Passing an examination.

Fifteen units of secondary instruction are required for matriculation, of which nine are prescribed and six are elective. The subjects in which the prescribed units must be offered are:

> English (*three*), History (*one*), Mathematics (Algebra and Geometry) (*two*), a Modern Foreign Language (*two*), Science (*one*).

The remaining six units may be offered by election from the following group, the number of additional units accepted in the several prescribed subjects being indicated in parentheses:

> Domestic Science (*one*) or Manual Training (*one*), Drawing (*one*), History (*one,* or *two*), Latin (*two,* or *three,* or *four*), Mathematics (*one,* or *one and a half*), Modern Foreign Language (*two* or *three,* or *four*), Science (*one,* or *two*).

Advanced standing may be granted to applicants who offer approved collegiate or professional courses in a college, scientific school, normal school, training school, or technical school in advance of high school graduation.

The course of study enabling the candidate to meet the graduation requirements is made flexible so as to permit a choice of courses in various subjects, within limits, in accordance with the future work of the student.

The requirements are:

1. A series of subjects required of all matriculated students, namely:

English, two courses; Foreign Languages, three courses in at least two languages; History, one course; Science, one course.

2. A major consisting of three courses in one subject, and of two courses in one or two cognate subjects. Required courses may not be counted as part of the work in the major.

3. Electives sufficient to complete the requirement of one hundred and twenty points.

All candidates for the degree must complete a minimum of twenty-four points in the College Courses for Teachers. The maximum credit allowed a student in one summer session is eight points.

By a plan of co-operation with the Maryland Institute of Baltimore, provision has been made whereby candidates for the degree who desire to offer a major in art may do so by completing the following courses: I. Drawing: Freehand drawing, first year, 6 hours; drawing from the antique, second year, 6 hours; still-life and portrait drawing, third year, 6 or 9 hours; life drawing, fourth year, 6 or 9 hours.

Cognate courses: Design, 6 hours, and history of art, 2 hours. The first-year drawing and the history of art courses may be taken at the University. The maximum amount of credit allowed for drawing is seventeen points.

The Maryland Institute is also announcing a special Normal Art Course for the training of teachers and supervisors of art in public schools. Certain courses in education at the University form a part of this special course.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. In the case of women who may desire to become candidates for the degree of Bachelor of Arts, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the academic department of the Johns Hopkins University in the case of those men who desire to proceed to the degree of Bachelor of Arts.

The instruction will be conducted as far as possible at the Johns Hopkins University. In some instances, classes and laboratory exercises may be held at Goucher College.

THE DEGREE OF BACHELOR OF ARTS

Those who wish to become candidates for the degree of Bachelor of Arts in this University are referred to the circular descriptive of The College of Arts and Sciences of the Johns Hopkins University, 1917, for a detailed statement of the requirements for matriculation. This circular may be had by addressing the Registrar.

Those who desire to become candidates for the same degree in Goucher College are referred to the Announcements for 1917-18, for a detailed statement of the corresponding requirements in that institution. This circular may be had by addressing the Registrar of the College.

As a final requirement before this degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree is conferred by the Johns Hopkins University upon men only.

EXPENSES

The charge for instruction is ten dollars per year for each hour per week. Each course will continue throughout the academic year, except as otherwise stated. Where laboratory fees are required they are additional. From two to three hours of laboratory work will be charged as one hour of recitation or lecture.

Fees are payable in semi-annual instalments, in October and February, at the office of the Treasurer of tne University, Room 121, Gilman Hall. Before payment of fees can be made, applicants must receive from the Registrar a card stating the courses to be taken.

The fee for matriculation as a candidate for the degree of Bachelor of Science is $5. The fee for graduation is $5, payable before the delivery of the diploma.

SESSION

The courses will open on Monday, October 8, 1917, and close on Saturday, May 25, 1918. Each course will include instruction for thirty weeks, except as otherwise noted. Classroom and laboratory exercises will be given in the afternoon and evening from Monday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual University recesses at Thanksgiving, Christmas, and Easter.

SCHEDULE OF HOURS

Classes will be held in the University buildings at Homewood. The complete schedule of hours can not be arranged prior to the opening of the courses on October 8. In addition to the usual afternoon and Saturday forenoon schedule, a number of classes will be held in the evenings at 8 o'clock, usually two hours in one session. Changes in the hours indicated may be made at the opening in order to meet the convenience of students. Where days and hours are omitted, the convenience of students will also be considered in arranging the schedule.

THE COURSES OF INSTRUCTION

Any course for which there are fewer than ten applicants may be withdrawn. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of, or other than, those mentioned below, an effort will be made to arrange for such instruction.

The exact amount of credit towards the baccalaureate degrees, which will be allowed for the successful completion of each of the following courses, can be determined definitely only at the end of the year.

Art

1. History of Art.

a. Ancient Art.

A general outline of ancient architecture, sculpture, and painting with some attention to the minor arts and to drawing as seen on vases. The development of the different branches of ancient art from prehistoric times will be systematically considered and their influence on later art emphasized. Lectures illustrated by slides, photographs, casts and original antiquities. Reports and required reading for credit. Books recommended: Reinach's Apollo (Scribner's Sons, New York, 1909, $1.50); Fowler-Wheeler, Greek Archaeology (New York, 1909, $2.00); Strong's Roman Sculpture (London, 1911, $3.00).

Professor ROBINSON. First half-year. Tuesday, 8-10 p. m.

b. Mediaeval and Modern Art.

History of the development of Mediaeval, Renaissance, and Modern Architecture, Sculpture and Painting. Lectures, recitations, reports on assigned topics. Text book: Reinach's Apollo.

Professor FROELICHER. Second half-year. Tuesday, 8-10 p. m.

The course on the History of Art may be offered as part of the requirement of the major in art.

2. Greek and Roman Sculpture.

Lectures on the history of Greek sculpture, with an outline of Roman sculpture.
Professor Robinson. Wednesday, 4 p. m.

Chemistry

The following courses are designed to meet the needs of students who are unable to follow a regular college course, but wish to pursue work in this subject, and of those who wish to prepare for a course in Domestic Science.

1. General Inorganic Chemistry.

No previous knowledge of chemistry is required. The work covers the general principles and laws of chemistry and a study of the more important metallic and non-metallic elements. In the laboratory selected experiments, illustrating the preparation, properties and reactions of inorganic substances and the applications of chemical laws, are performed.
Collegiate Professor Gilpin and Dr. Miller. Lectures, 8-10 p. m.; and laboratory, 7.30-10 p. m., or Saturday, 9-12 m.

2. Qualitative and Quantitative Analysis.

This course will include chiefly laboratory exercises, with two sessions each week. Occasionally a part or all of an evening will be devoted to a discussion of the theoretical principles of the reactions being studied. As the laboratory work is of an individual character, an effort will be made to meet the needs of each student in the kind of work assigned. Practice will be given in the methods of gravimetric and volumetric quantitative analysis.
Collegiate Professor Gilpin and Dr. Miller. 7.30-10 p. m.

3. General Organic Chemistry.

This course is arranged especially to meet the needs of those planning to take advanced courses in cookery. It will consist of two lectures and one laboratory period each week.

Pre-requisite: Chemistry 1.

Collegiate Professor GILPIN. Lectures, 4-6 p. m., and laboratory, Saturday, 9 a. m.-12 m.

Drawing

The instruction in this course in freehand drawing aims to impart such knowledge of the principles of drawing as shall give students the ability to represent natural objects correctly.

This course may be offered as the first-year requirement of the major in art.

Mr. WHITEMAN. Six hours weekly. Monday, Tuesday, Wednesday, Thursday, 2-5 p. m.

Education

1. History of Education.

The course offered will present in outline the history of Education, tracing the development of those ideas, practices and institutions of the past which have been most effective in determining the essential features and problems of education in the present. The work is based on Monroe's "Textbook in the History of Education."

Professor BUCHNER. Monday and Wednesday, 5.10 p. m.

2. Educational Psychology.

This course will treat of mental development and the psychological basis of educational theory and practice, and include the special psychology of interest, work, practice, childhood and adolescence, and the various school subjects. A survey of the recent studies in educational psychology will be made.

Professor BUCHNER. Monday and Wednesday, 4.10 p. m.

3. The Sub-Normal Child and its Training.

This course (October to February) during the first ten lectures and clinical demonstrations will deal with the various conditions underlying defective mental development, with the principles of training subnormal children, and with the special problems confronting social workers and teachers. The following six lectures and clinical demonstrations will be devoted to the problems of neurotic children and to various mental anomalies of childhood, with a brief review of child psychology.

Lecture Room, Phipps Psychiatric Clinic, Johns Hopkins Hospital.

Associate Professor Campbell. First half-year. Saturday, 9 to 11 a. m.

4. Principles of Education.

This course on the principles of Education will undertake a study of education with a view to understanding the work of the school and the mental and social factors in individual development.

Professor Buchner. Tuesday, 4.10-6 p. m.

5. Principles of Teaching and Special Methods in High School Subjects.

The first part of this course will present the principles underlying the method of instruction and class-room management, and include such topics as habit formation, the laws of learning, and the nature of the thinking process.

During the second part of the course application of these principles will be made to the problems of teaching the subjects in high school courses of study.

Professor Buchner, Miss Bamberger, and Dr. Weglein. Thursday, 4.10-6 p. m.

6. High School Organization and Classroom Management.

This course will deal with some of the principal topics related to the organization and administration of secondary schools, such as: The historical development and function of the American high school; comparisons with secondary schools in other countries; the main problems connected with the program of studies; extra-classroom activities; supervised study; the junior high school.

Reports and discussion of observation of classroom and other high school activities.

Dr. Weglein. Tuesday and Friday, 4.10 p. m.

7. Elementary Education.

This course includes the study of the principles and aims underlying elementary education. Among the topics to be discussed are: an examination of the social needs for subject-matter in each of the school subjects, the organization of the problems and materials of this subject-matter in response to the mental development of pupils, the classification of pupils and provision for individual differences, formulating of programs, proper methods of study, and measuring the results of teaching.

For those interested in problems of supervision, a third period may be arranged, in which additional topics will be considered. The work in supervision is an optional additional hour, and may be offered for extra credit.

Recitations will be observed with regard to method followed and the conduct of study periods will receive attention. Reports based on the observation of class-room work will be handed in from time to time.

Miss Bamberger. Saturday, 9.15-11 a. m.

8. Experimental Education.

This course deals with psycho-educational processes in action from the scientific point of view, and is based upon a comparative study of investigations in educational research. Emphasis will be placed on methods of approaching educational problems and the application and evaluation of measuring scales and mental tests. Research will be undertaken in problems selected according to the chief interests of individual students.

Dr. Baldwin. Saturday, 11.15 a. m.-1 p. m.

English

1. English Composition.

This course will include a review of the essentials of usage, the study of the principles of structure and style, and frequent practice in writing. Weekly themes will be required; these will be returned with written criticisms.

Associate Professor French and an Assistant. Tuesday and Thursday, 5.10 p. m.

2. English Literature.

This introductory course offers a survey of the history of English literature, and aims to develop an intelligent appreciation of literature. During the first half-year attention will be given to general principles and literary types. the greater English writers being taken up historically during the second half-year. The course corresponds to English Literature 4, in the College of Arts and Science.

Dr. Powell: Wednesday and Friday, 5.10 p. m.

3. European Drama.

A survey of the drama from Aeschylus to Ibsen. One play will be studied of each of the great dramatic periods,—Greek, Roman, mediaeval, Elizabethan, classicist, and modern,—as illustrative of the evolution of the drama and the stage. Special stress will be laid throughout upon the influence of foreign plays and dramatic technique upon English drama.

Texts: Matthews, B. *The Development of the Drama,* and *Chief European Dramatists.*

Professor Gay. Tuesday, 8-10 p. m.

French

1. French Elements for Beginners.

a. Grammar:—Fraser and Squair, *Shorter French Course.*

b. French Texts:—Dumas, *Le Chevalier de Maison-Rouge;* Monvert, *La belle France;* Labiche et Martin, *Le Voyage de Monsieur Perrichon;* About, *La Mère de la Marquise;* Augier et Sandeau, *Le Gendre de Monsieur Poirier;* Daudet, *Contes;* Molière; *L'Avare;* Sand, *La Mare au Diable;* Maupassant, *Contes Choisis;* Bowen, *French Lyrics.*

This course is planned for students beginning the study of French and aims to impart a good reading knowledge of the language. It includes pronunciation, composition, and translation. Upon the completion of the course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in French. Graduate and medical students completing this course absolve the requirements in French, of candidates for the degree of Doctor of Philosophy, and for admission to the Medical School, respectively.

Professor SHEFLOE. Tuesday and Thursday, 5.10 p. m.; Saturday, 9 a. m.

2. French Readings.

A course in French reading, grammar, and composition, for students who have had the equivalent of Course 1. The texts will be chosen from modern authors, and the exercises in composition will be of a practical nature.

Dr. GRUENBAUM. Tuesday, 4.10-5.50 p. m.

3. French Literature since 1870.

A study will be made of the general trend in the novel, drama and lyric poetry since the Franco-Prussian War. Extensive reading and reports upon the authors read will be required, which will be supplemented by lectures in French. An integral part of the course will be training in the use of the phonetic alphabet of the International Phonetic Association which will be helpful to teachers of the language.

Collegiate Professor Brush. Thursday, 4.10-5.50 p. m.

German

1. German Elements.

a. Vos, *Essentials of German.*

b. Texts: Heyse, *Die Blinden;* Keller, *Kleider machen Leute;* Meyer, *Das Amulet;* Wilhelmi, *Einer muss heiraten.*

This course is adapted to those who wish to begin the study of German or who have had a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation, and composition. Upon the successful completion of the work, the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in German.

Professor Froelicher. Tuesday, 4.10 p. m.; Saturday, 9-11 a. m.

2. German Readings.

Modern Prose Readings with Exercises in Prose Composition. Such writers as Storm, Sudermann, C. F. Meyer, Arnold, Schurz, etc., will be read. This course corresponds to collegiate German 1, and, if satisfactorily completed, will be credited accordingly. The two hours of literature and the one hour of composition may be taken jointly or separately.

Associate Professor Roulston. Three hours a week.

3. Practical German.

Practical Exercises in Spoken and Written German. The nature of this course will depend somewhat on the previous training of those who wish to follow it. It is intended, however, primarily for those who desire to increase their knowledge of practical Modern German.

Associate Professor Roulston. Two hours a week. An evening session may be arranged.

4. German Literature.

a. German Drama of the Nineteenth Century will be studied under two aspects:

1. Antique Classicism and Modern Romanticism.
   Schiller, *Die Braut von Messina,* Heinrich von Kleist, *Amphitryon,* Tieck, *Der gestiefelte Kater,* Grillparzer, *Medea,* von Platen, *Der romantische Ödipus,* Hugo von Hofmannsthal, *Elektra.*
2. Social Drama, from *Das Junge Deutschland* to the modern *Freie Bühne.*
   Gutzkow, *Das Urbild des Tartüffe,* Hebbel, *Maria Magdalena,* Freytag, *Die Journalisten,* Sudermann, *Die Heimat,* Gerhart Hauptmann, *Die Weber, Florian Geyer.*
   October to February, inclusive.

b. German Lyric Poetry.

Selected poems, from the period of Goethe and Schiller to the present time, will be studied.
March 1 to end of second half-year.

Text-book: *The Oxford Book of German Verse.* The cheaper edition in cloth (Oxford University Press, American Branch).
Professor Wood. Monday and Wednesday, 4.10 p. m.

History

1. American Diplomacy.

A study of the foreign relations of the United States from the Declaration of Independence to the present time, covering the principal disputes to which the United States has been a party, American contributions to international law, relations with Latin America, with the Orient, and with Europe. The course is designed to give a comprehensive view of America's relation to world politics. Based on lectures, informal discussions, and assigned readings in the standard writers and in such source collections of the Treaties and Conventions of the United States as the annual volumes of Foreign Relations.

Professor Latane. Thursday, 8-10 p. m.

2. *A.* History of Medieval Civilization.

A study of European civilization from the beginning of the Christian era to the Renaissance with special reference to characteristic institutions. No single text-book will be used. A syllabus with lists for reference will be provided and the use of source materials will be especially encouraged.

Or

B. History of the United States, 1783-1883.

A survey of the political, social, and economic history of the United States during the first century of national development. A syllabus will be provided and no single text-book will be used.

Assistant Professor Gallagher. Wednesday, 8-9.45 p. m.

Italian

The object of this course for beginners will be to acquire a reading knowledge of modern Italian and correct pronunciation. Prose composition will begin as soon as the most elementary part of the grammar has been mastered. The following text-books will be used: Grandgent, *Italian Grammar;* Wilkins and Altrocchi, *Italian Short Stories:* Collodi, *Le Avventure di Pinocchio.*

Dr. Gruenbaum. Wednesday and Friday, 5.10 p. m.

Latin

A course will be offered for the reading of the following authors: Livy (selections); Vergil, *Bucolics;* Horace, *Odes.*

Students will also read privately, for examination, Cicero, *Cato Major;* Vergil, *Aeneid,* book VIII. The course will be given two or three hours a week; in the latter case, one hour a week will be given to Latin Composition, and the work covered should correspond to that done in the collegiate course Latin 1. The two hours of literature and the one hour of composition may be taken jointly or separately.

Collegiate Professor **Mustard**. Tuesday and Thursday, 4.10 p. m.; Saturday, 9 a. m.

(In case of a sufficient demand for a more advanced course, it will be given in place of the above.)

Mathematics

1. Algebra and Plane Analytic Geometry.

The first part of the year will be devoted to a study of Algebra, the second part being given to an introductory course in Plane Analytic Geometry.

Pre-requisites: Elementary Algebra; Plane Geometry.

Professor **Bacon**. Tuesday and Thursday, 5.10 p. m.; Saturday, 9 a. m.

2. A Course for Teachers of Mathematics.

This course will be a critical review of elementary Geometry and Algebra in light of recent work in the logical foundations of this subject. There will be an elementary presentation of the subjects of the axioms of Geometry and of the modern number theory, together with some discussion and comparison of text-books.

Pre-requisite: Mathematics, through Plane Analytic Geometry.

Collegiate Professor **Hulburt**. Two hours a week, which may be arranged in one session.

Philosophy

1. History of Philosophy.

A survey of the fundamental problems of philosophy, followed by a presentation of the great philosophical systems from Socrates to Nietzsche.

Dr. Slonimsky. Wednesday, 8-10 p. m.

2. Social Ethics.

After a preliminary survey of the beginnings and growth of morality, study will be made of the principles of social ethics in application to the whole system of organized social relations,—the state, economic order, and the family.

Dr. Slonimsky. Monday, 8-10 p. m.

Oriental Seminary

The following courses, offered in the Oriental Seminary, presuppose no knowledge of the Hebrew or Greek language:

History of the Ancient East. Dr. Blake. Wednesday, 5 p. m.

Biblical Archaeology. Dr. Rosenau. Monday, 5 p. m.

The Literature of the Bible. Dr. Rosenau. Tuesday, 5 p. m.

Political Economy

1. Elements of Political Economy.

Instruction is offered in the elements of political economy, with particular reference to current economic problems. The development of modern industrial society will first be described, after which study will be made of modern economic organiation.

Mr. Griffin. Friday, 8-10 p. m.

2. Statistics.

After a preliminary study of the value and place of statistics as an instrument of investigation, attention is directed to the chief methods used in statistical inquiry. The illustrations of statistical methods will be drawn from the fields of economics, education and social work.

Dr. Shenton. Friday, 8-10 p. m.

Political Science

1. Comparative Government.

In the first half of the year study will be made of the organization and working of foreign government; in the second half, attention will be given to the corresponding features of American government.

Dr. Millspaugh. Wednesday, 8-10 p. m.

2. Municipal Government and Political Parties.

The first half of the year will be devoted to the study of the structure and functions of municipal government, with particular reference to the past experience and present problems of American cities. In the second half of the year study will be made of the history and organization of political parties.

Dr. Millspaugh. Friday, 8-10 p. m.

Psychology

1. Introduction to General Psychology.

This is a fundamental course, of two hours a week, advisable for students who intend to work in any branch of psychology. It will consist of lectures, discussions, and assigned readings. Laboratory work (three hours on Saturday morning) is optional, and additional credit is given.

Professor Dunlap. Thursday, 8-10 p. m.

2. Experimental Psychology.

In this course the work is arranged to suit the needs and preparation of individual students.

Professor Dunlap. Two periods per week.

3. Social Psychology.

The course undertakes a survey of the psychological factors involved in social relations. Such topics are considered as the primary instincts and emotions, imitation and suggestion, efficiency and its evaluation, the family group, and the social function of religion.

Professor DUNLAP. Tuesday, 8-10 p. m.

Students enrolled in the College Courses for Teachers may be admitted to the course in Advanced General Psychology, if properly prepared.

Spanish

1. Spanish Elements.

   a. De Vitis, *Spanish Grammar;* oral and written exercises.

   b. Hills, *Spanish Tales for Beginners;* Alarcón, *El Capitán Veneno;* Palacio Valdés, *La Hermana San Sulpicio.*

A course intended for beginners. Upon successful completion of this course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in Spanish.

Dr. GRUENBAUM. Wednesday and Friday, 4.10 p. m.

2. Practical Spanish.

A practical course in Spanish for those who have had the elements of the language, and who desire to gain a broader knowledge of the literature, together with facility in speaking and writing Spanish.

Dr. BUCETA. Thursday, 8.10 p. m.

Attendants on the College Courses for Teachers, 1916-1917, 435.

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No. 5

Whole Number 305

THE JOHNS HOPKINS UNIVERSITY CIRCULAR

COLLEGE COURSES FOR TEACHERS

COURSES IN BUSINESS ECONOMICS

NIGHT COURSES FOR TECHNICAL WORKERS

1918-1919

Baltimore, Maryland
Published by the University
Issued Monthly from October to July
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CALENDAR, 1918-19

General Assembly, College Courses for Teachers, Saturday, October 5, 10 a. m. (Donovan Room, Gilman Hall).

General Assembly, Courses in Business Economics, Friday, October 11, 8 p. m., Civil Engineering Building.

College Courses for Teachers begin Monday, October 7, 1918.

Courses in Business Economics and Night Courses for Technical Workers begin Monday, October 14, 1918.

Thanksgiving Day falls on Thursday, November 28, 1918. *All classes suspended.*

The Christmas Recess begins Saturday, December 21, 1918.

Exercises will be resumed on Friday afternoon, January 3, 1919.

College Courses for Teachers and Night Courses for Technical Workers, Mid-year Examinations begin February 3, 1919.

Commemoration Day falls on Saturday, February 22, 1919. *All classes suspended.*

The Spring Recess begins Thursday morning, April 17, and closes Wednesday evening, April 23, 1919.

Courses in Business Economics and Night Courses for Technical Workers close Friday, May 23, 1919.

College Courses for Teachers close Saturday, May 24, 1919.

COLLEGE COURSES FOR TEACHERS

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1918-1919

THE JOHNS HOPKINS UNIVERSITY · BALTIMORE · 1876

BALTIMORE
The Johns Hopkins Press
1918

COMMITTEES

COLLEGE COURSES FOR TEACHERS

Edward F. Buchner, *Director of the College Courses for Teachers and Professor of Education.*

Eleanor L. Lord, *Dean and Professor of History, Goucher College.*

Henry Wood, *Professor of German.*

COURSES IN BUSINESS ECONOMICS

Jacob H. Hollander, *Professor of Political Economy.*

Edward F. Buchner, *Professor of Education.*

George E. Barnett, *Professor of Statistics.*

NIGHT COURSES FOR TECHNICAL WORKERS

Alexander G. Christie, *Associate Professor of Mechanical Engineering.*

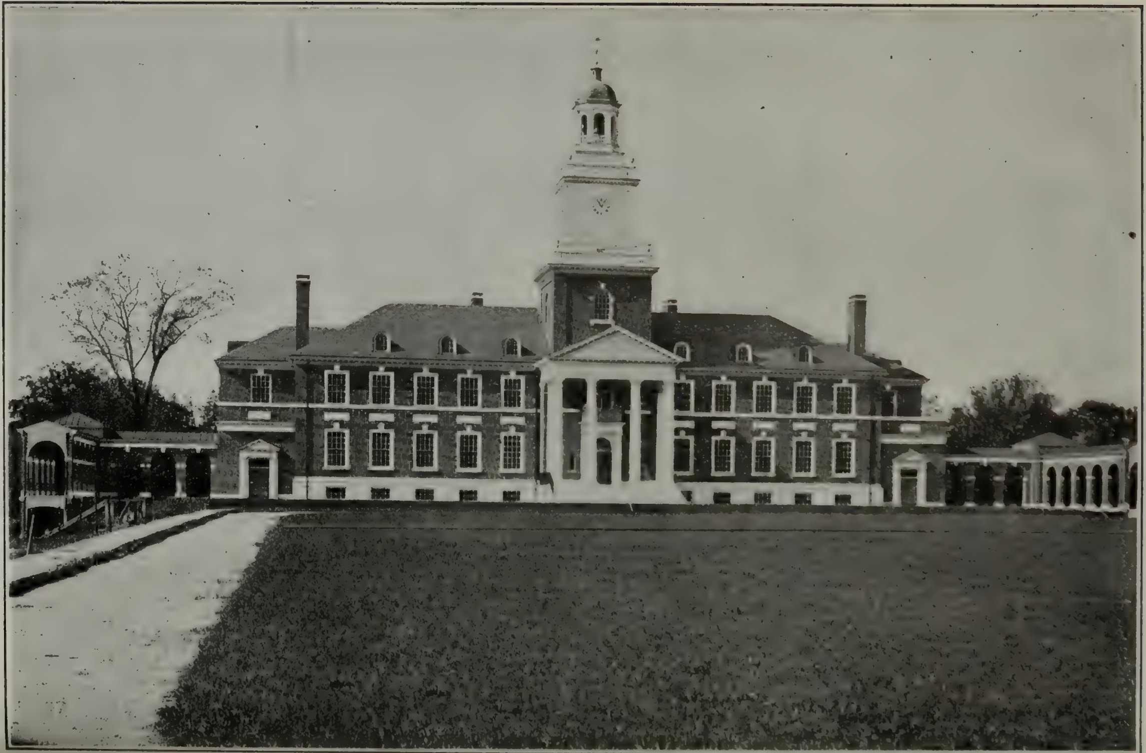
Charles J. Tilden, *Professor of Civil Engineering.*

William B. Kouwenhoven, *Associate Professor of Electrical Engineering.*

COLLEGE COURSES FOR TEACHERS

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up by those *not previously registered* and returned to the Director on or before October 1, 1918. Registration of former students should be made on or before October 5.

The Director may be found in Room 217, Gilman Hall, Homewood, daily from September 21 to September 28 (3-5 p. m., Monday to Friday; 10 a. m., Saturdays).



GILMAN HALL

INSTRUCTORS

Henry Wood, Ph. D. Professor of German.	*German*
Kirby F. Smith, Ph. D. Professor of Latin.	*Classical Literature*
Wilfred P. Mustard, Ph. D. Collegiate Professor of Latin.	*Latin*
Edward F. Buchner, Ph. D. Professor of Education.	*Education*
Murray P. Brush, Ph. D. Collegiate Professor of French.	*French*
David M. Robinson, Ph. D. Professor of Classical Archaeology and Epigraphy.	*Art*
J. Elliott Gilpin, Ph.D Collegiate Professor of Chemistry.	*Chemistry*
John H. Latané, Ph. D. Professor of American History.	*History*
John C. French, Ph. D. Associate Professor of English.	*English*
Robert B. Roulston, Ph. D. Associate Professor of German.	*German*
Frank R. Blake, Ph. D. Associate in Oriental Languages.	*Semitics*
Henry Slonimsky, Ph. D. Associate in Philosophy.	*Philosophy*
Florence E. Bamberger, A. M. Associate in Education.	*Education*
Gustav Gruenbaum, Ph. D. Associate in Romance Languages.	*French and Spanish*
S. Edwin Whiteman Instructor in Drawing.	*Drawing*

Ellis Miller, Ph. D. Associate in Chemistry.	*Chemistry*
Erasmo Buceta, Dr. en Derecho Associate in Spanish.	*Spanish*
Robert A. Stewart, Ph. D. Associate in Romance Languages.	*Spanish*
Chilton L. Powell, Ph. D. Instructor in English.	*English*
David E. Weglein, Ph. D. Instructor in Education.	*Education*
William F. Albright, Ph. D.	*Semitics*
Israel I. Efros, Ph. D.	*Semitics*
————————	*Russian*
Hans Froelicher, Ph. D. Professor of German and of Art Criticism in Goucher College.	*German and Art*
Joseph S. Shefloe, Ph. D. Professor of Romanic Languages in Goucher College.	*French*
Clara L. Bacon, Ph. D. Professor of Mathematics in Goucher College.	*Mathematics*
Annette B. Hopkins, Ph. D. Professor of English in Goucher College.	*English*
Katherine J. Gallagher, Ph. D. Assistant Professor of History in Goucher College.	*History*

GENERAL STATEMENT

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work has been done without any reference to credit toward an academic degree.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with Goucher College, has offered since 1909 courses of instruction to teachers and others whose vocations prevent their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1918-1919. It is the primary aim of these courses to provide teachers in public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in the academic department. In order to give further encouragement to teachers in service and others to carry on extended systematic study, this plan of instruction also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degrees of Bachelor of Art and Bachelor of Science.

Persons other than teachers will, as in the past, be admitted to these courses. They will be expected to present the proper qualifications for the subjects and courses they desire to pursue.

ADMISSION

The preparatory training desirable for the successful pursuit of these courses is that represented by the completion of a standard four-year high school course. In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course. Persons may be admitted to the courses either with or without reference to the baccalaureate degrees.

THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered by the Johns Hopkins University to both men and women completing the required courses of study in the College Courses for Teachers and in the Summer Courses, in accordance with the following regulations:

Those who wish to become candidates for the degree of Bachelor of Science must present evidence of having successfully completed courses of study equivalent to the graduating requirements of a standard four-year high school. This evidence may be offered by either of the following means:

1. Presenting certificates:
   - (a) Of graduation from a secondary school having a course of study of four years, and approved by the Committee on Matriculation.

(b) Of the College Entrance Examination Board, or other approved examining boards.

2. Passing an examination.

Fifteen units of secondary instruction are required for matriculation, of which nine are prescribed and six are elective. The subjects in which the prescribed units must be offered are:

> English (*three*), History (*one*), Mathematics (Algebra and Geometry) (*two*), a Modern Foreign Language (*two*), Science (*one*).

The remaining six units may be offered by election from the following group, the number of additional units accepted in the several prescribed subjects being indicated in parentheses:

> Domestic Science (*one*) or Manual Training (*one*), Drawing (*one*), History (*one, or two*), Latin (*two, or three, or four*), Mathematics (*one, or one and a half*), Modern Foreign Language (*two or three, or four*), Science (*one, or two*).

Advanced standing may be granted to applicants who offer approved collegiate or professional courses in a college, scientific school, normal school, training school, or technical school in advance of high school graduation.

The course of study enabling the candidate to meet the graduation requirements is made flexible so as to permit a choice of courses in various subjects, within limits, in accordance with the future work of the student.

The requirements are:

1. A series of subjects required of all matriculated students, namely:

> English, two courses; Foreign Languages, three courses in at least two languages; History, one course; Science, one course.

2. A major consisting of three courses in one subject, and of two courses in one or two cognate subjects. Required courses may not be counted as part of the work in the major.

3. Electives sufficient to complete the requirement of one hundred and twenty points.

All candidates for the degree must complete a minimum of twenty-four points in the College Courses for Teachers. The maximum credit allowed a student in one summer session is eight points.

By a plan of co-operation with the Maryland Institute of Baltimore, provision has been made whereby candidates for the degree who desire to offer a major in art may do so by completing the following courses: I. Drawing: Freehand drawing, first year, 6 hours; drawing from the antique, second year, 6 hours; still-life and portrait drawing, third year, 6 or 9 hours; life drawing, fourth year, 6 or 9 hours. II. Cognate courses: Design, 6 hours, and history of art, 2 hours. The first-year drawing and the history of art courses may be taken at the University. The maximum amount of credit allowed for drawing is seventeen points.

The Maryland Institute is also announcing a special Normal Art Course for the training of teachers and supervisors of art in public schools. Certain courses in education at the University form a part of this special course.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. In the case of women who may desire to become candidates for the degree of Bachelor of Arts, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the academic department of the Johns Hopkins University in the case of those men who desire to proceed to the degree of Bachelor of Arts.

The instruction will be conducted as far as possible at the Johns Hopkins University. In some instances, classes and laboratory exercises may be held at Goucher College.

THE DEGREE OF BACHELOR OF ARTS

Those who wish to become candidates for the degree of Bachelor of Arts in this University are referred to the circular descriptive of The College of Arts and Sciences of the Johns Hopkins University, 1918, for a detailed statement of the requirements for matriculation. This circular may be had by addressing the Registrar.

Those who desire to become candidates for the same degree in Goucher College are referred to the Announcements for 1918-19, for a detailed statement of the corresponding requirements in that institution. This circular may be had by addressing the Registrar of the College.

As a final requirement before this degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree is conferred by the Johns Hopkins University upon men only.

EXPENSES

The charge for instruction is ten dollars per year for each hour per week. Each course will continue throughout the academic year, except as otherwise stated. Where laboratory fees are required they are additional. From two to three hours of laboratory work will be charged as one hour of recitation or lecture.

Fees are payable in semi-annual instalments, in October and February, at the office of the Treasurer of the University, Room 121, Gilman Hall. Before payment of fees can be made, applicants must receive from the Registrar a card stating the courses to be taken.

The fee for matriculation as a candidate for the degree of Bachelor of Science is $5. The fee for graduation is $5, payable before the delivery of the diploma.

SESSION

The courses will open on Monday, October 7, 1918, and close on Saturday, May 24, 1919. Each course will include instruction for thirty weeks, except as otherwise noted. Class-room and laboratory exercises will be given in the afternoon and evening from Monday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual University recesses at Thanksgiving, Christmas, and Easter.

SCHEDULE OF HOURS

Classes will be held in the University buildings at Homewood. The complete schedule of hours can not be arranged prior to the opening of the courses on October 7. In addition to the usual afternoon and Saturday forenoon schedule, a number of classes will be held in the evenings at 8 o'clock, usually two hours in one session. Changes in the hours indicated may be made at the opening in order to meet the convenience of students. Where days and hours are omitted, the convenience of students will also be considered in arranging the schedule.

COURSES OF INSTRUCTION

Any course for which there are fewer than ten applicants may be withdrawn. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of, or other than, those mentioned below, an effort will be made to arrange for such instruction.

The exact amount of credit towards the baccalaureate degrees, which will be allowed for the successful completion of each of the following courses, can be determined definitely only at the end of the year.

ART

1. History of Art.

a. Ancient Art.

A general outline of ancient architecture, sculpture, and painting with some attention to the minor arts and to drawing as seen on vases. The development of the different branches of ancient art from prehistoric times will be systematically considered and their influence on later art emphasized. Lectures illustrated by slides, photographs, casts and original antiquities. Reports and required reading for credit. Books recommended: Reinach's Apollo (Scribner's Sons, New York, 1909, $1.50); Fowler-Wheeler, Greek Archaeology (New York, 1909, $2.00).

Professor ROBINSON. First half-year. Two hours a week, which may be arranged in one period.

b. Mediaeval and Modern Art.

History of the development of Mediaeval, Renaissance, and Modern Architecture, Sculpture and Painting. Lectures, recitations, reports on assigned topics. Text book: Reinach's Apollo.

Professor FROELICHER. Second half-year. Tuesday, 8-9.45 p. m.

The course on the History of Art may be offered as part of the requirement of the major in art.

2. Greek and Roman Vases.

A brief account of the various early wares will be given, but the principal study will be concentrated upon the Attic black-figured and red-figured vases as sources of information on Mythology and Private Life. Some study will be devoted finally to Arretine and other Roman vases.

Professor ROBINSON. Tuesday, 4 p. m.

3. History of Modern Painting.

Professor FROELICHER. Two hours a week, first half-year.

CHEMISTRY

1. General Inorganic Chemistry.

No previous knowledge of chemistry is required. The work covers the general principles and laws of chemistry and a study of the more important metallic and non-metallic elements. In the laboratory selected experiments, illustrating the preparation, properties and reactions of inorganic substances and the applications of chemical laws, are performed.

Collegiate Professor GILPIN and Dr. MILLER. Lectures, 8-9.45 p. m.; and laboratory, 7.30-10 p. m., or Saturday, 9 a. m.-12 m.

2. Qualitative and Quantitative Analysis.

This course will include chiefly laboratory exercises, with two sessions each week. Occasionally a part or all of an evening will be devoted to a discussion of the theoretical principles of the reactions being studied. As the laboratory work is of an individual character, an effort will be made to meet the needs of each student in the kind of work assigned. Practice will be given in the methods of gravimetric and volumetric quantitative analysis.

Dr. MILLER. 7.30-10 p. m.

3. General Organic Chemistry.

A systematic course in the general principles of organic chemistry and the properties and reactions of the paraffin and benzene derivatives. It will consist of one lecture (two hours) and one laboratory period each week. The course will be so arranged as to meet the needs of those preparing for the Medical School, the School of Hygiene, or to do advanced work in Domestic Science.

Pre-requisite: Chemistry 1.

Collegiate Professor GILPIN. Lecture, 8-9.45 p. m., and laboratory, at night, or Saturday, 9 a. m.-12 m.

Laboratory fee: $10.00 for each course, in addition to breakage.

DRAWING

The instruction in this course in freehand drawing aims to impart such knowledge of the principles of drawing as shall give students the ability to represent natural objects correctly.

This course may be offered as the first-year requirement of the major in art.

Mr. WHITEMAN. Six hours weekly. Monday, Tuesday, Wednesday, Thursday, 2-5 p. m.

EDUCATION

1. History of Education.

The course offered will present in outline the history of Education, tracing the development of those ideas, practices and institutions of the past which have been most effective in determining the essential features and problems of education in the present. The work is based on Monroe's "Textbook in the History of Education."

Professor BUCHNER. Monday and Wednesday, 5.10 p. m.

2. Principles of Education.

This course on the principles of Education will undertake a study of education with a view to understanding the work of the school and the mental and social factors in individual development.

Professor BUCHNER. Tuesday, 4.20-6 p. m.

3. Educational Psychology.

This course will treat of mental development and the psychological basis of educational theory and practice, and include the special psychology of interest, work, practice, childhood and adolescence, and the various school subjects. A survey of the recent studies in educational psychology will be made.

Professor BUCHNER. Monday and Wednesday, 4.10 p. m.

4. Principles of Teaching and Special Methods in Secondary School Subjects.

The first part of this course will present the principles underlying the method of instruction and class-room management, and include such topics as habit formation, the laws of learning, and the nature of the thinking process.

During the second part of the course application of these principles will be made to the problems of teaching the subjects in secondary courses of study.

Professor BUCHNER, Miss BAMBERGER, and Dr. WEGLEIN. Two hours a week.

5. Secondary School Organization and Class-Room Management.

This course will deal with some of the principal topics related to the organization and administration of secondary schools, such as: The historical development and function of the American high school; comparisons with secondary schools in other countries; the main problems connected with the program of studies; the junior high school; extra-class-room activities; supervised study; methods of instruction.

Reports and discussion of observation of class-room and other secondary school activities.

Dr. WEGLEIN. Tuesday and Friday, 4.10 p. m.

6. Special Problems in Secondary Education.

A consideration of recent investigations in the field of secondary education.

Dr. WEGLEIN. Tuesday and Friday, 5.10 p. m.

7. Elementary Education.

This course includes the study of the principles and aims underlying elementary education. Among the topics to be discussed are: An examination of the social needs for subject-matter in each of the school subjects; the organization of the problems and materials of this subject-matter in response to the mental development of pupils; the classification of pupils and provision for individual differences; formulating of programs; proper methods of study; and measuring the results of teaching.

For those interested in problems of supervision, a third period may be arranged, in which additional topics will be considered. The work in supervision is an optional additional hour, and may be offered for extra credit.

Recitations will be observed with regard to method followed and the conduct of study periods will receive attention. Reports based on the observation of class-room work will be handed in from time to time.

Miss Bamberger. Saturday, 9.15-11 a. m.

8. Elementary School Organization and Class-room Management.

This course treats of the principles of teaching with special reference to the conditions of organization and management under the control of the teacher. Such topics will be included as: Teacher's arrangement of material; organization of the school; flexible grouping of children; daily schedule; types of seat work; supervision of seat work; discussion of scales for measuring the achievement of pupils; program making; judgment of text books. Observations, discussions and reports will be required.

Miss Bamberger. Saturday, 11.15 a. m.-1 p. m.

9. Experimental Education.

This course deals with psycho-educational processes in action from the scientific point of view, and is based upon a comparative study of investigations in educational research. Emphasis will be placed on methods of approaching educational problems and the application and evaluation of measuring scales and mental tests. Research will be undertaken in problems selected according to the chief interests of individual students.

Professor BUCHNER. Saturday, 11.15 a. m.-1 p. m.

ENGLISH

1. English Composition.

This course will include a review of the essentials of usage, the study of the principles of structure and style, and frequent practice in writing. Weekly themes will be required; these will be returned with written criticisms.

Associate Professor FRENCH and an Assistant. Tuesday and Thursday, 5.10 p. m.

2. English Literature.

This course will attempt to define literature as an art, to develop the student's understanding and appreciation of it, and to present briefly the greater English writers. The first half-year will be devoted to a discussion of literary technique; the second will consist of lectures historical and critical upon the literature of England.

Dr. POWELL. Wednesday and Friday, 5.10 p. m.

3. Victorian Poetry.

The course will comprise lectures on the political, social, scientific, and religious movements from 1832 onward, which are widely reflected in the literature of the period, and a study of the poetry of Tennyson, Browning, and Arnold, with intensive work on the longer poems, such as *In Memoriam, The Idylls of the King,* and *The Ring and the Book.* In addition to the extensive reading of these poets, papers on assigned subjects will be required.

Professor HOPKINS. Tuesday, 7.45-9.30 p. m.

FRENCH

1. French Elements.

a. Grammar:—Fraser and Squair, *Shorter French Course.*

b. French Texts:—Dumas, *Le Chevalier de Maison-Rouge;* Monvert, *La belle France;* Labiche et Martin, *Le Voyage de Monsieur Perrichon;* About, *La Mère de la Marquise;* Augier et Sandeau, *Le Gendre de Monsieur Poirier;* Daudet, *Contes;* Molière, *L'Avare;* Sand, *La Mare au Diable;* Maupassant, *Contes Choisis;* Bowen, *French Lyrics.*

This course is planned for students beginning the study of French and aims to impart a good reading knowledge of the language. It includes pronunciation, composition, and translation. Upon the successful completion of the course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in French. Graduate and medical students completing this course absolve the requirements in French, of candidates for the degree of Doctor of Philosophy and for admission to the Medical School, respectively.

Professor SHEFLOE. Tuesday and Thursday, 4.30-6 p. m.

2. French Readings.

A course in French reading, grammar, and composition, for students who have had the equivalent of Course 1. The texts will be chosen from modern authors, and the exercises in composition will be of a practical nature.

Dr. GRUENBAUM. Tuesday, 4.10-5.50 p. m.

3. Practical French.

Practical exercises in spoken French. The nature of this course will depend upon the previous training of those who wish to follow it. It is intended, however, primarily for those who desire to increase their knowledge of practical modern French.

Dr. GRUENBAUM. Wednesday, 4.10-5.50 p. m.

4. *Les Contemporains.*

A study will be made of the general trend in the novel, drama and lyric poetry. Extensive reading and reports upon the authors read will be required, which will be supplemented by lectures in French. An integral part of the course will be training in the use of the phonetic alphabet of the International Phonetic Association which will be helpful to teachers of the language.

Collegiate Professor BRUSH. Monday, 4.10-5.50 p. m.

GERMAN

1. German Elements.

a. Vos, *Essentials of German.*

b. Texts: Heyse, *Die Blinden;* Keller, *Kleider machen Leute;* Meyer, *Das Amulet;* Wilhelmi, *Einer muss heiraten.*

This course is adapted to those who wish to begin the study of German or who have had a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation, and composition. Upon the successful completion of the work, the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in German. Graduate and medical students completing this course absolve the requirements in German, of candidates for the degree of Doctor of Philosophy and for admission to the Medical School, respectively.

Professor FROELICHER. Tuesday, 4.10 p. m.; Saturday, 9-11 a. m.

2. German Readings.

Modern prose readings with exercises in prose composition. Such writers as Storm, Sudermann, C. F. Meyer, Arnold, Schurz, etc., will be read. This course corresponds to collegiate German 1, and, if satisfactorily completed, will be credited accordingly. The two hours of literature and the one hour of composition may be taken jointly or separately.

Associate Professor Roulston. Three hours a week.

3. Practical German.

Practical exercises in spoken and written German. The nature of this course will depend somewhat on the previous training of those who wish to follow it. It is intended, however, primarily for those who desire to increase their knowledge of practical Modern German.

Associate Professor Roulston. Two hours a week. An evening session may be arranged.

4. German Literature.

a. Goethe, *Faust,* Part I.
October to February, inclusive.

b. German Lyric Poetry.
Selected poems, from the period of Goethe and Schiller to the present time, will be studied.
March 1 to the end of the year.
Text-books: Goethe's *Faust;* edited by Calvin Thomas. The First Part. Boston, D. C. Heath & Co.; or Goethe's *Faust,* herausgegeben von Georg Witkowski, 2 Bände, Leipzig, 1906; *The Oxford Book of German Verse.* The cheaper edition in cloth (Oxford University Press, American Branch).

Professor Wood. Monday and Tuesday, 5 p. m.

HISTORY

1. American Diplomacy.

A study of the foreign relations of the United States from the Declaration of Independence to the present time, covering the principal disputes to which the United States has been a party, American contributions to international law, relations with Latin America, with the Orient, and with Europe. The course is designed to give a comprehensive view of America's relation to world politics.

Professor LATANÉ. Thursday, 8-9.45 p. m.

2. *A*. History of Medieval Civilization.

A study of European civilization from the beginning of the Christian era to the Renaissance with special reference to characteristic institutions. No single text-book will be used. A syllabus with lists for reference will be provided and the use of source materials will be especially encouraged.

Or,

B. History of the United States, 1783-1883.

A survey of the political, social, and economic history of the United States during the first century of national development. A syllabus will be provided and no single text-book will be used.

Assistant Professor GALLAGHER. Wednesday, 8-9.45 p. m.

ITALIAN

The object of this course for beginners will be to acquire a reading knowledge of modern Italian and correct pronunciation. Prose composition will begin as soon as the most elementary part of the grammar has been mastered. The following text-books will be used: Shepard, *Italian Grammar;* Wilkins and Altrocchi, *Italian Short Stories;* Collodi, *Le Avventure di Pinocchio.*

Dr. GRUENBAUM. Thursday, 4.10-5.50 p. m.

LATIN

1. Vergil.

This course is intended for teachers in secondary schools and advanced students. It will include a detailed study of selected passages from the *Bucolics, Georgics,* and *Aeneid.* Special attention will be given to prosody, to Vergil's literary art, and to his place and influence in literature.

Collegiate Professor MUSTARD. Two hours a week, which may be arranged in one session.

2. Classical Literature.

A series of lectures on great representative authors of classical literature from Homer to the Second Century A. D. Special attention will be given to certain aspects of formal and artistic development and to the growth and influence of literary tradition.

The course will require the reading in translation of the authors studied. A previous knowledge of Greek and Latin is desirable, but not essential.

Professor SMITH. Two hours a week, 5.10 p. m.

MATHEMATICS

Algebra and Plane Analytic Geometry.

The first part of the year will be devoted to a study of Algebra, the second part being given to an introductory course in Plane Analytic Geometry.

Pre-requisites: Elementary Algebra; Plane Geometry.

Professor BACON. Tuesday and Thursday, 5.10 p. m.; Saturday, 9 a. m.

PHILOSOPHY

History of Philosophy.

A survey of the fundamental problems of philosophy, followed by a presentation of the great philosophical systems from Socrates to Nietzsche.

Dr. SLONIMSKY. Wednesday, 8-9.45 p. m.

(In case of a sufficient demand, a course on the History of Philosophy in the Nineteenth Century will be given in place of the above.)

ORIENTAL SEMINARY

The following courses, offered in the Oriental Seminary, presuppose no knowledge of the Hebrew or Greek language:

1. History of the Ancient East (Egypt, Babylonia, Assyria, Persia, Israel, and Judah).

Dr. BLAKE. Wednesday, 5 p. m.

2. Biblical Archaeology.

Dr. ALBRIGHT. Monday, 5 p. m.

3. Jewish Ceremonial Institutions.

Dr. EFROS. Thursday, 5 p. m.

4. The Literature of the Bible (with special reference to date and authorship).

Dr. ALBRIGHT. Tuesday, 5 p. m.

RUSSIAN

This course will include instruction in elementary grammar, colloquial and written Russian. Practical exercises will be based on standard prose works.

Two hours a week.

SPANISH

1. Spanish Elements.

   a. Espinosa and Alleri's *Spanish Grammar;* oral and written exercises.

   b. Hills, *Spanish Tales for Beginners;* Alarcón, *El*

Capitán Veneno; Palacio Valdés, *La Hermana San Sulpicio.*

A course intended for beginners. Upon successful completion of this course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in Spanish.

Dr. Stewart. Wednesday and Friday, 4.10 p. m.

2. Practical Spanish.

A practical course in Spanish for those who have had the elements of the language, and who desire to gain a broader knowledge of the literature, together with facility in speaking and writing Spanish.

Dr. Buceta. Thursday, 8-9.45 p. m.

(In case of a sufficient demand, a course in conversational and written Spanish, including composition, in advance of Spanish 2 will be given.)

3. Spanish Literature.

This course will include the history of Spanish literature, special attention being given to the classic drama and Cervantes, with exercises in oral practice, grammar, and composition.

Dr. Buceta. Two periods a week.

Attendants on the College Courses for Teachers, 1917-1918, 349.

COURSES IN BUSINESS ECONOMICS

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and should be filled up and returned on or before October 11, 1918.

MECHANICAL AND ELECTRICAL ENGINEERING BUILDING

INSTRUCTORS

Jacob H. Hollander, Ph. D. Professor of Political Economy.	*Political Economy*
George E. Barnett, Ph. D. Professor of Statistics.	*Corporation Finance*
Henry Slonimsky, Ph. D. Associate in Philosophy.	*Social Ethics*
Arthur C. Millspaugh, Ph. D. Instructor in Political Science.	*City Administration and the Electorate; Government and Administration*
J. Earle Uhler, A. B.	*Business English*
J. Wallace Bryan, Ph. D., C. P. A.	*Elementary Accounting*
Ernest E. Wooden, C. P. A.	*Theory of Accounts*
E. Lyell Gunts, A. B.	*Principles of Advertising*
Evert C. Palmer	*Principles of Salesmanship*

GENERAL STATEMENT

The Johns Hopkins University will offer during the academic year 1918-19 the following series of evening courses of instruction in subjects of direct interest and value to young men and women actually engaged in or contemplating entrance into business, industry and commerce. Such instruction is made available at hours and under conditions designed to meet the convenience of those likely to make use thereof.

SELECTION OF COURSES

Students are advised not to limit their choice of courses to those subjects that are directly related to the particular business or activity in which they are engaged. All students, employed in business or in social service, will find the course in the Elements of Political Economy of particular value, as supplying a sound foundation for the more intelligent pursuit of the specialized courses. Such a general course should, indeed, whenever possible, precede or accompany special courses. The courses in the Theory of Accounts and Elementary Accounting will be found profitable not only by those who wish to become professional accountants, but by all classes of business men interested in and concerned with the details of the financial organization of modern industry.

While the courses are designed in the main to offer instruction to those engaged in various fields of business and social activity, the instruction will be designed to meet the needs also of those who have a more general interest in the subject.

Instruction in modern languages and in a wide range of subjects ordinarily included in a college curriculum, as well as in engineering subjects, is available in the "Teachers' Courses" and in the "Engineering Courses," offered by this University.

ADMISSION AND ATTENDANCE

There are no formal examinations for admission. Students, both men and women, will be admitted to such courses as they are found qualified by the respective instructors to pursue with advantage.

The satisfactory completion of any of these courses will be recognized by the award of a certificate of attendance. Credits so received may be used, upon matriculation, towards the degree of Bachelor of Science.

A preliminary assembly of all students attending the courses will be held on Friday, October 11. Instruction will begin on Monday, October 14, and proceed in accordance with the schedule of the courses. Students are advised to register as far in advance of the opening of the session as may be possible.

The Registrar's office (Academic Building, Room 219) will be open for registration of students daily from 9 a. m. to 5 p. m., and also on Friday, October 11, from 7.30 to 9.30 p. m. It is requested that registration blanks be obtained in advance by written application to the Registrar.

All fees must be paid to the Treasurer of the University immediately upon registration.

LOCATION

The courses will be given in the Mechanical Engineering Building (Charles and Thirty-second Streets).

TUITION FEES

The tuition fee is $20.00 for each course of two hours weekly extending through the academic year. Fees are payable at the office of the Treasurer of the Johns Hopkins University, Academic Building, Room 121. Before payment of fees can be made, applicants must receive from the Registrar a card stating the course or courses to be taken.

COURSES OF INSTRUCTION

Political Economy

The purpose of the course will be to acquaint those who are engaged in practical affairs with some knowledge of the principles underlying the modern industrial world. With this intention, the first half-year will be devoted to an elementary study of economic theory. Attention will be given to the well established doctrines of the science rather than to the unsettled issues. In the second half-year the practical application of economic principles to the problems of the business world will be considered. Such questions as productive efficiency, the growth of population, the wages question, the circulating medium, international trade, rent and interest, and taxation will be discussed.

Professor Hollander. Tuesday, 8-10 p. m.

Corporation Finance

A study of the corporation, primarily with reference to its financial management. The more important topics taken up include: advantages and disadvantages of corporate organizations, the salient features of general laws governing incorporation, essential features in the charter, classification and examination of the characteristics of stocks and bonds, the amount of capitalization, the choice of different types of securities to be issued, methods by which these securities are floated, functions of the promoter, the old and newer forms of promotion, methods of consolidation, the holding company, the methods and forms of syndicate underwriting, methods of selling securities and raising additional capital, financing policy with reference to dividends and surplus, refunding of debt and provisions for amortization, methods of manipulation by officers, stockholders and directors, insolvency, receivership and reorganization, regulation by the State of security issues, and corporation taxation.

Professor Barnett. Tuesday, 8-10 p. m.

SOCIAL ETHICS

This course is an attempt to formulate a theory of progress from the standpoint of ethics; and to analyze and appraise the existing social institution—the state, the economic order, and the family—in the light of that theory. The ethical standard that serves as foundation may be described as rational idealism, as opposed to the instinctive idealism which dominates the thought and conduct of the age; *i. e.,* it is an idealism grounded on the established facts and generalizations of the life-sciences,—biology, psychology, sociology. The ethical test of any age lies in the ethical value of its institutions, the great social institution being the embodied expression of the moral consciousness of that age; and the present course is an attempt to appraise that value, *i. e.,* to measure the true progress of the age by ascertaining the true value of the institutions for the sole ends which they should subserve, namely, human happiness and moral efficiency. The analysis shows that civilization does not necessarily mean progress, that much of our present progress is specious, and in conclusion points out the lines of reconstruction.

DR. SLONIMSKY. Monday, 8-10 p. m.

CITY ADMINISTRATION AND THE ELECTORATE

In the first half-year the course will deal with the administration of city government with special reference to the Government of Baltimore. The course will deal with forms of city government, municipal home rule, charter-making and the administration of the departments of police, fire protection, water supply, waste disposal, streets, lighting, health and education. At least half the time of this course will be devoted to a careful practical study of the administration of Baltimore. In the second half-year, a study will be made of the part played by the individual citizen in government, and of the various electoral problems and devices which are important topics of current discussion in this country and foreign countries. The course will treat of the suffrage, political parties, methods of nomination and election, ballot-forms, the initiative, the referendum, the recall, the short ballot and the civil service. Especial attention will be devoted to the problems of democratic reconstruction after the war.

Dr. MILLSPAUGH. Wednesday, 8-10 p. m.

GOVERNMENT AND ADMINISTRATION

This course will survey the governmental systems of the United States, Great Britain, France, Germany, Switzerland and the British Dominions. It aims to study principles and their application in different countries as a basis for an intelligent and practical criticism of the organization and administration of our own government. The course is adapted particularly to the school-teacher, the lawyer, the prospective woman voter and the city or state officials and employees. The course will deal with forms of government, their actual working, financial administration, and the general principles of American constitutional law with emphasis on the legal aspects of economic and social legislation, as well as the relation of political systems and theories to the great war and the period of reconstruction afterward.

Dr. MILLSPAUGH. Friday, 8-10 p. m.

BUSINESS ENGLISH

This course devotes the first half-year to the study of grammatical usage and structure, requiring weekly themes on commercial topics of general importance, such as the letter of credit, the clearing house, royalty, patent, bill of lading, income tax, mortgage. During the second half-year, the class studies the composition of such business letters as those of recommendation, introduction and application, and those of the buyer, seller and collector, as well as advertisements, reports and office notices. Special attention is given to the style of commercial forms. The reading of selected books is prescribed, among them being Palmer's *Self-Cultivation in English* and *Trades and Professions,* Husband's *America at Work,* and Eliot's *Training for an Effective Life.*

Mr. UHLER. Thursday, 8-10 p. m.

ELEMENTARY ACCOUNTING

This course presents in an elementary but comprehensive way the fundamentals of accounting theory and practice. It is designed to serve, not only as a basis for more advanced studies in accountancy, but also as a means of affording a practical familiarity with financial records and statements that will be useful in every-day business activities. To these ends, the concepts that underlie the science of accounting will be analyzed, and a thorough explanation given of single and double-entry book-keeping, the types and functions of books in general use, and the scope and purposes of the various accounts and statements. Instruction and practice will be afforded in the opening, operation, adjustment and closing of books and accounts, the construction and analysis of financial statements, the changing from one system of book-keeping to another, and the solution of practical problems. The aim will be to make the exposition both logical and non-technical, so that the course will be available to persons who have no knowledge of book-keeping, as well as to those with book-keeping experience who wish to acquire a broader view of the science on which their profession is founded.

Dr. BRYAN. Thursday, 8-10 p. m.

THEORY OF ACCOUNTS

The class will open with the consideration of single entry book-keeping, showing the method of changing from single entry to double entry. Under the head of double entry book-keeping there will be consideration of the development of the books of original entry from the original journal, also the development of the books of final record. Forms of books used in modern business will be shown. Accounts will be classified and the theory of representative accounts under each classification will be studied. The theory and preparation of various forms of financial statements will be considered and illustrative problems will be worked out in class and given for home work. The accounts peculiar to certain lines of business will receive special consideration.

Mr. WOODEN. Monday, 7.30-9.30 p. m.

PRINCIPLES OF SALESMANSHIP

This course covers (a) the definite selling principles which are the basis for successful salesmanship; (b) the elements of business psychology including a comprehensive treatment of the buying motives which will enable the salesman to determine the keynote of the interview; (c) character analysis; (d) developing personality, this subject includes special tests to determine the strength of the sales presentation. It also includes studies in the qualities of character, in the art of concentration and constructive work that will assist in overcoming personal faults; (e) the art of selling—that is, the application of these principles in actual work; (f) selling by mail; (g) principles of salesmanagement; and (h) tests and research work.

Mr. Palmer. Wednesday, 8-10 p. m.

PRINCIPLES OF ADVERTISING

The course will include the study of ways and means to analyze a market—market conditions and competition, as well as methods of distribution, merchandising and planning of a selling and advertising campaign from beginning to end. The mechanics of advertising will be fully treated. Buying motives will be studied and classified according to their relative importance. The relation of advertising to selling will be discussed. Practice will be given in layouts and copy writing. Commercial art will be treated from all angles. Methods of determining the value of advertising media will be an important feature of the course. Sales and advertising organization building will be analyzed and agency methods fully explained. The course will have a two-fold interest—first to the man or woman in business who desires to understand the relation of advertising to merchandising, and second to the student who expects to make advertising a life work.

Mr. Gunts. Thursday, 8-10 p. m.

Attendants on the Courses in Business Economics, 1917-1918, 351.

NIGHT COURSES FOR TECHNICAL WORKERS

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up and returned on or before October 7, 1918.

Instructors will hold consultation hours from 7.30 to 9.30 p. m., October 9 to 11 inclusive, in the Engineering Buildings.

CIVIL ENGINEERING BUILDING

INSTRUCTORS

Lorrain S. Hulburt, Ph. D. — *Mathematics*
Collegiate Professor of Mathematics.

Charles J. Tilden, S. B. — *Civil Engineering*
Professor of Civil Engineering.

J. Elliott Gilpin, Ph. D. — *Chemistry*
Collegiate Professor of Chemistry.

Alexander G. Christie, M. E. — *Mechanical Engineering*
Associate Professor of Mechanical Engineering.

Grandville R. Jones, C. E. — *Civil Engineering*
Associate Professor of Civil Engineering.

William B. Kouwenhoven, Dr.-Ing. — *Electrical Engineering*
Associate Professor of Electrical Engineering.

John H. Bringhurst, B. C. E. — *Civil Engineering*
Associate Professor of Civil Engineering.

Julian C. Smallwood, M. E. — *Mechanical Engineering*
Associate in Mechanical Engineering.

Ellis Miller, Ph. D. — *Chemistry*
Associate in Chemistry.

Frederick W. Lieberknecht, E. E. — *Electrical Engineering*
Instructor in Electrical Engineering.

GENERAL STATEMENT

The Department of Engineering of The Johns Hopkins University announces for the season of 1918-19 a series of evening courses in various branches of Engineering and in Chemistry and Mathematics. These courses are especially designed for those who wish to improve their educational equipment, but who are prevented, by professional and other occupations, from availing themselves of the regular day courses offered in the University. The courses are given primarily for those who, without reference to an academic degree, wish to avail themselves of the opportunity afforded in special or general subjects in which they are interested.

During the past two years, evening courses have been given in the Department of Engineering which have been attended by a large number of students, and the results of this work have shown that a very real demand exists for the night courses for technical workers. The work for the coming year 1918-19 has been planned so that those who have pursued evening courses during the past year will be able to continue in more advanced courses during the coming year, and at the same time provision has been made for the entering class of new students. The war has created a new demand for instruction in certain technical courses not previously offered. The new courses of Radio Communication, Internal Combustion Engines, and Organic Chemistry are offered to meet these demands.

Instruction in the evening courses will begin on Monday, October 14, 1918, and consultation hours will be held by those in charge of instruction from Wednesday to Friday, October 9 to 11 inclusive, from 7.30 to 9 p. m., in the Engineering Buildings at Homewood.

APPLICATION FOR ADMISSION

Application for admission should be made on a blank form and sent to The Registrar, Johns Hopkins University, so as to be received not later than October 7. This is requested in order that the applications may be examined in a preliminary way before the consultation periods, October 9 to 11. Filling out and submitting the application blank carries with it no obligation to undertake the work, if, upon consultation with the instructor, the student decides otherwise.

The Committee in charge reserves the right to withdraw any of the courses offered, if in its opinion there are too few students registered to warrant giving the course.

ADVISERS

Each student will be assigned to an adviser who will assist in the selection of courses of study, and to whom the student can turn for information and guidance during the progress of his work.

FEES

The cost of instruction is the same as for the College Courses for Teachers, $10 per year for each hour per week. The regular courses in any subject occupy two evenings per week and cost $40 per year. In the Chemistry courses there is an additional laboratory fee of $15, making the total cost of each course $55. The fee for the half-year courses, for two evenings per week, will be $20.

By devoting four evenings each week to this work, a student may take two courses, but it is not advisable that more than this should be attempted.

COURSES OF INSTRUCTION

MATHEMATICS—1 N

An Elementary Course in Plane Trigonometry and Analytic Geometry. Professor HULBURT. *Two evenings per week.* Mechanical and Electrical Engineering Building.

This course is designed for beginners in the subjects of Trigonometry and Analytic Geometry, and is open to all students who have had some instruction in Algebra and Plane Geometry. The first part of the course will be devoted to Plane Trigonometry and will include the solution of triangles, and so much of the formulæ of Trigonometry as will be needed for the study of Analytic Geometry and Calculus. The remainder of the course will be given to Plane Analytic Geometry. This work will cover the subjects of the Straight Line, Circle, Conics, some Curves of Higher Order, and, if time permits, an introduction to the study of Calculus.

NOTE: The course in Mathematics is provided to meet the needs of students proposing to undertake work in the engineering subjects, but who are insufficiently prepared for entering these courses.

CHEMISTRY

Professor GILPIN and Dr. MILLER. *Two evenings per week for each course.* Civil Engineering Building, Room 114 and laboratory.

These courses are designed to meet the needs of several classes of students: those who are unable to follow a regular college course, but wish to pursue work in Chemistry alone; those who are working in analytical or industrial laboratories and wish to increase their knowledge of the theoretical principles of the subject or pursue work of a more advanced character than that which they have already taken; those who wish by taking the course in Organic Chemistry to prepare for the Medical School, the School of Hygiene, or work in Domestic Science. The courses are arranged so that one can take them in the following order: General inorganic chemistry, qualitative and quantitative analysis and organic chemistry. With outside reading and work in industrial laboratories, a good general training can be acquired in three or four years. A previous knowledge of physics is of great assistance to one taking work in Chemistry. The following courses will be given in 1918-19, provided the enrollment justifies them:

Chemistry 1 N. General Inorganic Chemistry.

One lecture (2 hours) and one laboratory period (2½ hours) each week. No previous knowledge of chemistry is required for this course. The work covers the general principles and laws of chemistry and a study of the more important metallic and non-metallic elements. In the laboratory selected experiments illustrating the preparation, properties and reactions of inorganic substances and the applications of chemical laws are performed. Those who have had laboratory practice, but no systematic instruction in Chemistry, will find this course very helpful.

Text-book: "College Chemistry," by Smith.

Chemistry 2 N. Qualitative and Quantitative Analysis.

This course will be largely a laboratory course with two sessions (2½ hours each) each week. Occasionally a part or all of a session will be given up to a discussion of the theoretical principles of the reactions being studied. As the laboratory work is of an individual character, an effort will be made to meet the needs of each student in the kind of work assigned.

Practice in the methods of gravimetric and volumetric quantitative analysis will be given, as such work is essential for one looking forward to a position in an industrial laboratory.

Chemistry 3 N. Organic Chemistry.

One lecture (2 hours) and one laboratory (2½ hours) each week. A systematic course in the general principles of organic chemistry and the properties and reaction of the paraffin and benzene derivatives. It will be possible to arrange the laboratory work to satisfy the condition for entrance into the medical schools.

CIVIL ENGINEERING

Professors TILDEN, JONES, BRINGHURST, and assistants. *Two evenings per week.* Civil Engineering Building.

Civil Engineering 1 N: Theory of the strength of materials and elements of structural design. Lectures, recitations and drafting room.

Preparation required: Trigonometry and plane geometry, algebra (through quadratics), the elements of calculus, some knowledge of elementary physics (particularly statics and mechanics), and some ability in mechanical drawing. Familiarity with the slide rule is desirable, but not essential.

This course will include the study of shear and bending moment diagrams; the theory of bending; tortion; stress and strain; the determination of change of shape in beams from the bending moment diagrams; internal stresses of tension, compression and shear; stress diagrams for framed structures; eccentric loads in tension and compression; column formulas; stresses in reinforced concrete columns and beams: and simple problems in the application of theory to the practical design of structures.

Civil Engineering 2 N: Advanced course in design. Lectures, recitations and drafting room.

Preparation required: Civil Engineering 1 N or its equivalent.

This course will include the Theory of Reinforced Concrete Design and practical problems illustrating the theory; taking in order Slabs, Beams, Columns, Footings, Retaining Wall, Dams and an introduction to Arches.

Text-book: "Principles of Reinforced Concrete Construction," by Turneaure and Mourer.

Civil Engineering 3 N: Sanitary Engineering Laboratory.

Preparation required: An elementary knowledge of general bacteriology and quantitative (volumetric) chemical analysis.

The course will include methods of analysis of water and sewage; the interpretation of analysis; application of laboratory results to problems of water purification and sewage treatment.

Text-book: "Standard Methods of Water Analysis"—Committee Report American Public Health Association.

ELECTRICAL ENGINEERING

Professor KOUWENHOVEN, Mr. LIEBERKNECHT, and assistant. *Two evenings per week.* Mechanical and Electrical Engineering Building.

Electrical Engineering 1 N: Elements of Electricity and Magnetism and Direct Current Machinery.

This course is intended for beginners. The aim of the course is to give the simpler relations of fundamental electrical theory in such form as to allow the student to make immediate practical applications of them. The first half-year is spent in the class room and in the second half-year the time is divided between class room and the laboratory.

The subjects discussed are the following: Magnets and Magnetism, Electromagnetism, Ohm's Law, Electric Circuits, Power, Power Measurements, Measurements of Resistance, Measurements of Current, Measurements of Potential, Magnetic Fields due to a Current, Ferro-Magnetism, Electromagnetic Induction, The Generator, The Motor, Inductance, Capacity, Electrolysis.

Preparation required: A knowledge of Arithmetic and the simpler elements of Algebra.

Text-books: "Elements of Electricity," by Timbie; "Experimental Electrical Engineering," by V. Karapetoff.

Electrical Engineering 2 N: Elementary Alternating Currents.

This course is a continuation of Course 1. Instruction is given in both class room and laboratory, and covers the following subjects: Frequency, Phase, Vector Diagrams of Simple Circuits, Resistance in A. C. Circuit, Inductive Reactance, Capacity Resistance, Impedance, Series and Parallel Circuits, Power Factor, A. C. Instruments, Simple Working Principle of the Transformer, of Alternator, of Synchronous Motor, of Induction Motor, of Synchronous Converter.

Preparation required: A knowledge of Trigonometry and the elements of Calculus."

Text-books: "Alternating Current Electricity," by Timbie and Higbie; "Experimental Electrical Engineering," by V. Karapetoff.

Electrical Engineering 3 N: Alternating Currents. Advanced Course.

This course is open to those who have completed Courses 1 and 2, or their equivalent. It has been arranged primarily to meet the needs of those who have already had collegiate courses in electrical engineering, and who desire to proceed further.

The subjects covered are the following: Analytical and Graphical Representations of the Alternating Current Circuit, Kirchoff's Laws in A. C. Circuits, Use of Complex Quantities in Simplifying A. C. Circuits, Polyphase Systems, Characteristic Performance of the Transmission Line, Transformer, Induction Motor, Alternator, Induction Generator, Synchronous Converter, with laboratory work.

Electrical Engineering 4 N: Radio Communication.

This is a half-year course of two evenings per week and is intended to provide training in the fundamentals of radio communication.

This course deals mainly with Radio Communication as applied to military service and should prove of considerable value to men intending later to enter branches of the Service where such training is required.

The following subjects are discussed: Electricity and Magnetism, Resistance, Self-Induction and Capacity at High Frequency, The Oscillating Circuit, The Oscillation Transformer, Electro-magnetic Waves, Sending and Receiving Stations for Damped and Undamped Waves, Crystal Detectors, Vacuum Tube Characteristics and Antenna.

MECHANICAL ENGINEERING

Professor CHRISTIE, Mr. SMALLWOOD, and instructor.

All courses are two evenings per week throughout the year, except as noted. Mechanical and Electrical Engineering Building.

Mechanical Engineering 1 N: Machine Design.

This course deals with the elements of machine design and the methods of calculating the size of parts. It includes the working of numerous problems illustrative of engineering methods. The following subjects are discussed in the course: Analysis of stresses in machine elements; Design of springs, shafts and bearings with problems of lubrication: Theory of gear drives and gear designs of various types; Theory and design of usual styles of fastenings as bolts, riveted joints, keys, forced fits, etc.; means of storing and distributing energy in machines leading to designs of flywheels, punches, etc.; Steam engine mechanism and the proportioning of engine parts; Gas engine design for various fuels and including stationary and automobile type engines; the structural design of boilers and boiler parts such as staying of flat surfaces, etc.

Preparation required: Mathematics, through trigonometry, and some knowledge of Physics.

Text-book: "Machine Design," by Kimball and Barr.

Mechanical Engineering 2 N: Heat Engines.

This is a practical course connecting the theory of heat engines with engine and boiler room practice. The theory is taught partly by lectures and text-book study and partly by working numerous problems which are selected with reference to their practical application in power plant operation.

The subject matter treated in the class room is as follows: Sources of energy; laws of heat transformation; the action and cycles of perfect gases with special reference to engineering applications, as in gas engines and air compressor work; the properties of steam: expansion, losses, cycles, and efficiencies of steam in steam engines: mechanical construction, operation, and regulation of various types of steam engines and turbines: analysis of the simple-slide valve, automatic cut-off valves, Corliss valves, etc.; theory, construction, and regulation of various types of gas and oil engines and gas producers. The analysis of combustion of coals, oils, and gases with special reference to the determination of losses and efficiencies in boiler room and gas engine practice; refrigerating and air compressing machinery; power plant auxiliaries. These classroom subjects are supplemented by laboratory periods, in which the more important power plant units are tested by the students.

Preparation required: Mathematics, including elements of Trigonometry, and elements of Physics and Chemistry.

Text-book: "Elements of Heat-Power Engineering," by Hirshfeld and Barnard.

Mechanical Engineering 3 N: Power Plant Design.

This course in Power Plant Design deals with the scientific and commercial methods of proportioning the various elements of a power plant, together with a discussion of the practical application of the underlying theory in each case. This includes boilers, fuels, furnaces, chimneys, boiler room auxiliaries, piping, feed water treatment, heating systems, engines and turbines, condensers, etc. Consideration is given to costs in each case. Next a power plant design is worked out from a given load curve. Methods are developed for estimating the cost of power production with the selected apparatus and the fixing of rates on the basis of these costs.

Emphasis is laid throughout the course on methods of improving plant performance and on the present trend of development of power plant equipment.

Preparation required: Heat engines or a similar course in applied thermodynamics, and some knowledge of strength of materials.

Text-book: "Mechanical Equipment of Buildings," Vol. 2, by Willard and Harding.

Mechanical Engineering 4 N: Internal Combustion Engines.

A half-year course of two evenings a week until February.

This course is intended for men entering aviation and other services which require a working knowledge of internal combustion engines.

It is designed to give the student a knowledge of the underlying principles of internal combustion engines and how these principles are applied in practice. It therefore includes considerable laboratory work in assembling and operating engines.

The class work includes a discussion of engine parts, fuels, gas engine cycles, heat changes, carburetion, ignition systems, cooling and lubricating methods, governing devices, construction features of gas, gasoline and oil engines of stationary, automobile and aeroplane types, and of Diesel engines, and some operating characteristics of each type.

Attendants on the Night Courses for Technical Workers, 1917-1918, 207.

The Johns Hopkins Press of Baltimore

American Journal of Insanity. H. M. Hurd, E. N. Brush, G. A. Blumer, J. M. Mosher and C. K. Clarke, Editors. Quarterly. 8vo. Volume LXXV in progress. $5 per volume. Foreign postage, fifty cents.)

American Journal of Mathematics. Edited by Frank Morley, with the coöperation of A. Cohen, Charlotte A. Scott and other mathematicians. Quarterly. 4to. Volume XL in progress. $6 per volume. (Foreign postage, fifty cents.)

American Journal of Philology. B. L. Gildersleeve and C. W. E. Miller, Editors. Quarterly. 8vo. Volume XXXIX in progress. $3 per volume. (Foreign postage fifty cents.)

Beiträge zur Assyriologie und semitischen Sprachwissenschaft. Paul Haupt and Friedrich Delitzsch, Editors. Volume X in progress.

Elliott Monographs in the Romance Languages and Literatures. E. C. Armstrong, Editor. 8vo. $3 per series. Three numbers have appeared.

Hesperia. Hermann Collitz, Henry Wood and James W. Bright, Editors. Eleven numbers have appeared.

Johns Hopkins Hospital Bulletin. Monthly. 4to. Volume XXIX in progress. $3 per year. (Foreign postage, fifty cents.)

Johns Hopkins Hospital Reports. 8vo. Volume XVIII in progress. $5 per volume. (Foreign postage, fifty cents.)

Johns Hopkins University Circular, including the President's Report, Annual Register, and Medical Department Catalogue. T. R. Ball, Editor. Monthly (except August and September.) 8vo. $1 per year.

Johns Hopkins University Studies in Education. E. F. Buchner and C. M. Campbell, Editors. 8vo. Two numbers have appeared.

Johns Hopkins University Studies in Historical and Political Science. Under the direction of the Departments of History, Political Economy, and Political Science. Monthly. 8vo. Volume XXXVI in progress. $3.50 per volume.

Modern Language Notes. J. W. Bright, Editor-in-Chief, M. P. Brush, W. Kurrelmeyer and G. Gruenbaum, Eight times yearly. 8vo. Volume XXXIII in progress. $3 per volume. (Foreign postage, fifty cents.)

Reprint of Economic Tracts. J. H. Hollander, Editor. Fourth series in progress. $2.00.

Reports of the Maryland Geological Survey. Edited by E. B. Mathews.

Terrestrial Magnetism and Atmospheric Electricity. L. A. Bauer, Editor. Quarterly. 8vo. Vol. XXIII in progress. $3 per volume. (Foreign postage, 25 cents.)

Studies in Honor of Professor Gildersleeve. 527 pp. 8vo. $6.

Studies in Honor of A. Marshall Elliott. Two volumes. 8vo. 450 and 334 pp. $7.50.

The Physical Papers of Henry A. Rowland. 716 pp. 8vo. $7.50.

Ecclesiastes: A New Metrical Translation. By Paul Haupt. 50 pp. 8vo. 50 cents.

The Book of Nahum: A Metrical Translation. By Paul Haupt. 53 pp. 8vo. 50 cents.

The Eclogues of Baptista Mantuanus. By W. P. Mustard. 156 pp. Crown 8vo. $1.50.

The Piscatory Eclogues of Jacopo Sannazaro. By W. P. Mustard. 94 pp. Crown 8vo. $1.

The Eclogues of Faustus Andrelinus and Joannes Arnollettus. By W. P. Mustard. 123 pp. Crown 8vo. $1.00.

Diplomatic Negotiations of American Naval Officers, 1778-1883. By C. O. Paullin. 380 pp. 12mo. $2.

The Diplomacy of the War of 1812. By F. A. Updyke. 504 pp. 12mo. $2.50.

Early Diplomatic Relations between the United States and Mexico. By W. R. Manning. 418 pp. 12mo. $2.25.

West Florida Controversy, 1798-1813. By I. J. Cox. 702 pp. 12mo. $3.

An Outline of Psychobiology. By Knight Dunlap. 121 pp. 77 cuts. Royal 8vo. $1.25.

The Creed of the Old South. By B. L. Gildersleeve. 128 pp. Crown 8vo. $1.

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SCHOOL OF HYGIENE AND PUBLIC HEALTH

DEGREES D. P. H., SC. D., AND B. S. IN HYG.
(Open to Men and Women)

SUMMER COURSES

WITH A. M., A. B. AND B. S. CREDITS
(Open to Men and Women)

SUMMER COURSES FOR GRADUATES IN MEDICINE

(Not offered in 1918)

EVENING COURSES IN BUSINESS ECONOMICS AND IN ENGINEERING

(Open to Men and Women)

THE JOHNS HOPKINS PRESS PUBLICATIONS

STATE BUREAUS

MARYLAND GEOLOGICAL SURVEY, MARYLAND WEATHER SERVICE,
MARYLAND FORESTRY BUREAU

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v Series, 1919
No. 5

Whole Number 315

THE JOHNS HOPKINS UNIVERSITY CIRCULAR

COLLEGE COURSES FOR TEACHERS

COURSES IN BUSINESS AND SOCIAL ECONOMICS

NIGHT COURSES FOR TECHNICAL WORKERS

1919-1920

Baltimore, Maryland
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Issued Monthly from October to July
May, 1919

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Illinois State Natural History Survey

CALENDAR, 1919-20

General Assembly, College Courses for Teachers, Saturday, October 4, 10 a. m. (Donovan Room, Gilman Hall).

General Assembly, Courses in Business and Social Economics, Friday, October 10, 8 p. m., Civil Engineering Building.

College Courses for Teachers begin Monday, October 6, 1919.

Courses in Business and Social Economics and Night Courses for Technical Workers begin Monday, October 13, 1919.

Thanksgiving Day falls on Thursday, November 27, 1919. *All classes suspended.*

The Christmas Recess begins Wednesday morning, December 24, 1919.

Exercises will be resumed Monday afternoon, January 5, 1920.

College Courses for Teachers Mid-year Examinations begin February 2, 1920.

Commemoration Day will be observed Monday, February 23, 1920. *All classes suspended.*

The Spring Recess begins Thursday morning, April 1, and closes Wednesday evening, April 7, 1920.

Courses in Business and Social Economics and Night Courses for Technical Workers close Friday, May 21, 1920.

College Courses for Teachers close Saturday, May 29, 1920.

COLLEGE COURSES FOR TEACHERS

COURSES IN BUSINESS AND SOCIAL ECONOMICS

NIGHT COURSES FOR TECHNICAL WORKERS

1919-1920

BALTIMORE
The Johns Hopkins Press
1919

COMMITTEES

COLLEGE COURSES FOR TEACHERS

EDWARD F. BUCHNER, *Director of the College Courses for Teachers and Professor of Education.*

ELEANOR L. LORD, *Dean and Professor of History, Goucher College.*

HENRY WOOD, *Professor of German.*

COURSES IN BUSINESS AND SOCIAL ECONOMICS

JACOB H. HOLLANDER, *Professor of Political Economy.*

EDWARD F. BUCHNER, *Professor of Education.*

GEORGE E. BARNETT, *Professor of Statistics.*

NIGHT COURSES FOR TECHNICAL WORKERS

ALEXANDER G. CHRISTIE, *Associate Professor of Mechanical Engineering,* Chairman.

JOHN B. WHITEHEAD, *Professor of Electrical Engineering.*

(To be appointed) *Professor of Civil Engineering.*

COLLEGE COURSES FOR TEACHERS

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up by those *not previously registered* and returned to the Director on or before October 1, 1919. Registration of former students should be made on or before October 4.

The Director may be found in Room 217, Gilman Hall, Homewood, daily from September 20 to October 1 (3-5 p. m., Monday to Friday; 10 a. m., Saturdays).

GILMAN HALL

INSTRUCTORS

Henry Wood, Ph. D.	Professor of German.	*German*
Lorrain S. Hulburt, Ph. D.	Collegiate Professor of Mathematics.	*Mathematics*
Wilfred P. Mustard, Ph. D.	Collegiate Professor of Latin.	*Latin*
Edward F. Buchner, Ph. D.	Professor of Education.	*Education*
David M. Robinson, Ph. D.	Professor of Classical Archaeology and Epigraphy.	*Art*
J. Elliott Gilpin, Ph. D.	Collegiate Professor of Chemistry.	*Chemistry*
John H. Latané, Ph. D.	Professor of American History.	*History*
Knight Dunlap, Ph. D.	Professor of Experimental Psychology.	*Psychology*
John C. French, Ph. D.	Associate Professor of English.	*English*
Robert B. Roulston, Ph. D.	Associate Professor of German.	*German*
William Rosenau, Ph. D.	Associate in Post-Biblical Hebrew.	*Semitics*
Frank R. Blake, Ph. D.	Associate in Oriental Languages.	*Semitics*
Henry Slonimsky, Ph. D.	Associate in Philosophy.	*Philosophy*
Florence E. Bamberger, A. M.	Associate in Education.	*Education*
Gustav Gruenbaum, Ph. D.	Associate in Romance Languages.	*French and Italian*
Ellis Miller, Ph. D.	Associate in Chemistry.	*Chemistry*

Robert A. Stewart, Ph. D. Associate in Romance Languages.	*Spanish*
S. Edwin Whiteman Instructor in Drawing.	*Drawing*
David E. Weglein, Ph. D. Instructor in Education.	*Education*
Alfred Breit	*Russian*
Albert L. Hammond, A. B.	*History of Philosophy*
————	*French*
————	*Spanish*
Hans Froelicher, Ph. D. Professor of German and of Art Criticism in Goucher College.	*Art*
Joseph S. Shefloe, Ph. D. Professor of Romanic Languages in Goucher College.	*French*
Annette B. Hopkins, Ph. D. Professor of English in Goucher College.	*English*
Katherine J. Gallagher, Ph. D. Assistant Professor of History in Goucher College.	*History*

GENERAL STATEMENT

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work has been done without any reference to credit toward an academic degree.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with Goucher College, has offered since 1909 courses of instruction to teachers and others whose vocations prevent their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1919-1920. It is the primary aim of these courses to provide teachers in public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in the academic department. In order to give further encouragement to teachers in service and others to carry on extended systematic study, this plan of instruction also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degrees of Bachelor of Art and Bachelor of Science.

Persons other than teachers will, as in the past, be admitted to these courses. They will be expected to present the proper qualifications for the subjects and courses they desire to pursue.

ADMISSION

The preparatory training desirable for the successful pursuit of these courses is that represented by the completion of a standard four-year high school course. In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course. Persons may be admitted to the courses either with or without reference to the baccalaureate degrees.

THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered by the Johns Hopkins University to both men and women completing the required courses of study in the College Courses for Teachers and in the Summer Courses, in accordance with the following regulations:

Those who wish to become candidates for the degree of Bachelor of Science must present evidence of having successfully completed courses of study equivalent to the graduating requirements of a standard four-year high school. This evidence may be offered by either of the following means:

1. Presenting certificates:
    (a) Of graduation from a secondary school having a course of study of four years, and approved by the Committee on Matriculation.

(b) Of the College Entrance Examination Board, or other approved examining boards.

2. Passing an examination.

Fifteen units of secondary instruction are required for matriculation, of which nine are prescribed and six are elective. The subjects in which the prescribed units must be offered are:

> English (*three*), History (*one*), Mathematics (Algebra and Geometry) (*two*), a Modern Foreign Language (*two*), Science (*one*).

The remaining six units may be offered by election from the following group, the number of additional units accepted in the several prescribed subjects being indicated in parentheses:

> Domestic Science (*one*) or Manual Training (*one*), Drawing (*one*), History (*one,* or *two*), Latin (*two,* or *three,* or *four*), Mathematics (*one,* or *one and a half*), Modern Foreign Language (*two,* or *three,* or *four*), Music (*one,* or *two*), Science (*one,* or *two*), Bookkeeping (*one*), Commercial Arithmetic (*one*), Commercial Geography (*one*), Commercial Law (*one*).

Advanced standing may be granted to applicants who offer approved collegiate or professional courses in a college, scientific school, normal school, training school, or technical school in advance of high school graduation.

The course of study enabling the candidate to meet the graduation requirements is made flexible so as to permit a choice of courses in various subjects, within limits, in accordance with the future work of the student.

The requirements are:

1. A series of subjects required of all matriculated students, namely:

English, two courses; Foreign Languages, three courses in at least two languages; History, one course; Science, one course.

2. A major consisting of three courses in one subject and of two courses in one or two cognate subjects. Required courses may not be counted as part of the work in the major.

3. Electives sufficient to complete the requirement of one hundred and twenty points.

All candidates for the degree must complete a minimum of twenty-four points in the College Courses for Teachers. The maximum credit allowed a student in one summer session is eight points.

By a plan of co-operation with the Maryland Institute of Baltimore, provision has been made whereby candidates for the degree who desire to offer a major in art may do so by completing the following courses: I. Drawing: Freehand drawing, first year, 6 hours; drawing from the antique, second year, 6 hours; still-life and portrait drawing, third year, 6 or 9 hours; life drawing, fourth year, 6 or 9 hours. II. Cognate courses: Design, 6 hours, and history of art, 2 hours. The first-year drawing may, and the history of art courses must, be taken at the University. The maximum amount of credit allowed for drawing is seventeen points.

The Maryland Institute is also announcing a special Normal Art Course for the training of teachers and supervisors of art in public schools. Certain courses in education at the University form a part of this special course.

Similar provision has been made, in co-operation with the Peabody Conservatory of Music, of Baltimore, whereby candidates for the degree who desire to offer a major in music may do so by completing at the Conservatory the following regular courses: Musical literature, history of music, musical pedagogy, normal class, harmony and harmonic analysis, ear training, and at least one main branch, as piano, organ, violin, 'cello, voice, harmony, or school music. The maximum amount of credit allowed for a major in music is twenty-three points. Candidates completing a major in music may offer more than one main branch.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. In the case of women who may desire to become candidates for the degree of Bachelor of Arts, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the academic department of the Johns Hopkins University in the case of those men who desire to proceed to the degree of Bachelor of Arts.

The instruction will be conducted as far as possible at the Johns Hopkins University. In some instances, classes and laboratory exercises may be held at Goucher College.

THE DEGREE OF BACHELOR OF ARTS

Those who wish to become candidates for the degree of Bachelor of Arts in this University are referred to the circular descriptive of The College of Arts and Sciences of the Johns Hopkins University, 1919, for a detailed statement of the requirements for matriculation. This circular may be had by addressing the Registrar.

Those who desire to become candidates for the same degree in Goucher College are referred to the Announcements for 1919-20, for a detailed statement of the corresponding requirements in that institution. This circular may be had by addressing the Registrar of the College.

As a final requirement before this degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree is conferred by the University upon men only.

EXPENSES

The charge for instruction is ten dollars a year for each hour per week. Each course will continue throughout the academic year, except as otherwise stated. Where laboratory fees are required they are additional. From two to three hours of laboratory work will be charged as one hour of recitation or lecture.

Fees are payable in semi-annual instalments, in October and February, at the office of the Treasurer of the University, Room 121, Gilman Hall. Before payment of fees can be made, applicants must receive from the Registrar a card stating the courses to be taken.

The fee for matriculation as a candidate for the degree of Bachelor of Science is $5. The fee for graduation is $5, payable before the delivery of the diploma.

SESSION

Instruction will begin Monday, October 6, 1919, and close on Saturday, May 29, 1920. Each course will include instruction for thirty-one weeks, except as otherwise noted. Classroom and laboratory exercises will be given in the afternoon and evening from Monday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual University recesses at Thanksgiving, Christmas, and Easter.

SCHEDULE OF HOURS

Classes will be held in the University buildings at Homewood. The complete schedule of hours can not be arranged prior to the opening of the courses on October 4. In addition to the usual afternoon and Saturday forenoon schedule, a number of classes will be held in the evenings at 8 o'clock, usually two hours in one session. Changes in the hours indicated may be made at the opening in order to meet the convenience of students. Where days and hours are omitted, the convenience of students will also be considered in arranging the schedule.

UNIVERSITY EXTENSION CENTERS

Under a regulation adopted by the Advisory Committee on the degree of Bachelor of Science in September, 1917, non-laboratory courses announced in the program, for which arrangements for instruction can be made, may be conducted at centers throughout the State of Maryland. The satisfactory completion of courses so conducted will be credited towards the degree of Bachelor of Science, and, also, will be accepted by the State Superintendent of Schools towards the renewal, or advancing the grade, of teachers' certificates.

The general conditions, under which classes will be organized at University Extension Centers, call for a minimum registration, and provision by the local class of the place of meeting and the incidental expenses of the visiting instructor. Class exercises are to be held weekly during the regular session, from October to May. The conditions of admission and tuition expenses are described on pages 8 and 12.

Since the adoption of the regulation, courses in Education have been conducted for both secondary and elementary public school teachers at Salisbury, Frederick, and Elkton. County Superintendents of Schools and others interested in the organization of classes at University Extension Centers should communicate with the Director of the College Courses for Teachers.

The Board of School Commissioners of Baltimore having extended the privilege of using certain of the public school buildings for classes in the College Courses for Teachers, the University will, within the limits of the schedule of the members of the Faculty, undertake the organization of classes to meet at convenient centers which may be available in parts of the city remote from Homewood.

COURSES OF INSTRUCTION

Any course for which there are fewer than twelve applicants may be withdrawn. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of, or other than, those mentioned below, an effort will be made to arrange for such instruction.

The exact amount of credit towards the baccalaureate degrees, which will be allowed for the successful completion of each of the following courses, can be determined definitely only at the end of the year.

ART

1. History of Art.

a. Ancient Art.

A general outline of ancient architecture, sculpture, and painting with some attention to the minor arts and to drawing as seen on vases. The development of the different branches of ancient art from prehistoric times will be systematically considered and their influence on later art emphasized. Lectures illustrated by slides, photographs, casts and original antiquities. Reports and required reading for credit. Books recommended: Reinach's Apollo (Scribner's Sons, New York, 1909, $1.50); Fowler-Wheeler, Greek Archaeology (New York, 1909, $2.00).

Professor ROBINSON. First half-year. Tuesday, 8-9.45 p. m.

b. Mediaeval and Modern Art.

History of the development of Mediaeval, Renaissance, and Modern Architecture, Sculpture and Painting. Lectures, recitations, reports on assigned topics. Text book: Reinach's Apollo.

Professor FROELICHER. Second half-year. Tuesday, 8-9.45 p. m.

The course on the History of Art must be offered as part of the requirement of the major in art.

2. Classical Art.

a. Mycenean and Cretan Art.

A study of prehistoric art and civilization as shown by the discoveries of recent excavations.

First half-year.

b. Outlines of Greek and Roman Architecture.

Second half-year.

Professor Robinson. Wednesday, 4 p. m.

3. History of Modern Painting.

The period studied extends from 1700 to the present.

Professor Froelicher. Two hours a week, first half-year. Tuesday, 8-9.45 p. m.

4. American Art.

A study of the different phases of the development of art in the Americas, beginning with the archaeological material and including modern architecture, painting, and sculpture.

Professor Robinson. Second half-year. Tuesday, 8-9.45 p. m.

CHEMISTRY

1. General Inorganic Chemistry.

No previous knowledge of chemistry is required. The work covers the general principles and laws of chemistry and a study of the more important metallic and non-metallic elements. In the laboratory selected experiments, illustrating the preparation, properties and reactions of inorganic substances and the applications of chemical laws, are performed.

Professor Gilpin and Dr. Miller. Lecture, 8-9.45 p. m.; and laboratory, 7.30-10 p. m., or Saturday, 9 a. m.-12 m.

2. Qualitative and Quantitative Analysis.

This course will include chiefly laboratory exercises, with two sessions each week. Occasionally a part or all of an evening will be devoted to a discussion of the theoretical principles of the reactions being studied. As the laboratory work is of an individual character, an effort will be made to meet the needs of each student in the kind of work assigned. Practice will be given in the methods of gravimetric and volumetric quantitative analysis.

Dr. Miller. 7.30-10 p. m.

3. General Organic Chemistry.

A systematic course in the general principles of organic chemistry and the properties and reactions of the paraffin and benzene derivatives. It will consist of one lecture (two hours) and one laboratory period each week. The course will be so arranged as to meet the needs of those preparing for the Medical School, the School of Hygiene, or advanced work in Domestic Science.

Prerequisite: Chemistry 1.

Professor GILPIN. Lecture, 8-9.45 p. m., and laboratory, at night, or Saturday, 9 a. m.-12 m.

Laboratory fee: $10.00 for each course, in addition to breakage.

DRAWING

The instruction in this course in freehand drawing aims to impart such knowledge of the principles of drawing as shall give students the ability to represent natural objects correctly.

This course may be offered as the first-year requirement of the major in art.

Mr. WHITEMAN. Six hours weekly. Monday, Tuesday, Wednesday, Thursday, 2-5 p. m.

EDUCATION

1. History of Education.

The course offered will present in outline the history of Education, tracing the development of those ideas, practices and institutions of the past which have been most effective in determining the essential features and problems of education in the present. The work is based on Monroe's "Textbook in the History of Education."

Professor BUCHNER. Monday and Wednesday, 5.10 p. m.

2. Principles of Education.

This course on the principles of Education will undertake a study of education with a view to understanding the work of the school and the mental and social factors in individual development.

Professor BUCHNER. Tuesday, 4.20-6 p. m.

3. Educational Psychology.

This course will treat of mental development and the psychological basis of educational theory and practice, and include the special psychology of interest, work, practice, childhood and adolescence, learning, and the various school subjects. A survey of the recent studies in educational psychology will be made.

Professor BUCHNER. Monday and Wednesday, 4.10 p. m.

4. Principles of Teaching and Special Methods in Secondary School Subjects.

The first part of this course will present the principles underlying the method of instruction and classroom management, and include such topics as habit formation, the laws of learning, and the nature of the thinking process.

During the second part of the course application of these principles will be made to the problems of teaching the subjects in secondary courses of study.

Professor BUCHNER, Miss BAMBERGER, and Dr. WEGLEIN. Two hours a week.

5. Secondary School Organization and Class-Room Management.

This course will deal with some of the principal topics related to the organization and administration of secondary schools, such as: The historical development and function of the American high school; comparisons with secondary schools in other countries; the main problems connected with the program of studies; the junior high school; extra-classroom activities; supervised study; methods of instruction.

Reports and discussion of observation of classroom and other secondary school activities.

Dr. WEGLEIN. Tuesday and Friday, 4.10 p. m.

6. Special Problems in Secondary Education.

A consideration of recent investigations in the field of secondary education.

Dr. WEGLEIN. Tuesday and Friday, 5.10 p. m.

7. Elementary Education.

This course includes the study of the principles and aims underlying elementary education. Among the topics to be discussed are: An examination of the social needs for subject-matter in each of the school subjects; the organization of the problems and materials of this subject-matter in response to the mental development of pupils; the classification of pupils and provision for individual differences; formulating of programs; proper methods of study; and measuring the results of teaching.

For those interested in problems of supervision, a third period may be arranged, in which additional topics will be considered. The work in supervision is an optional additional hour, and may be offered for extra credit.

Recitations will be observed with regard to method followed and the conduct of study periods will receive attention. Reports based on the observation of classroom work will be handed in from time to time.

Miss BAMBERGER. Saturday, 9.15-11 a. m.

8. Elementary School Organization and Classroom Management.

This course treats of the principles of teaching with special reference to the conditions of organization and management under the control of the teacher. Such topics will be included as: Teacher's arrangement of material; organization of the school; flexible grouping of children; daily schedule; types of seat work; supervision of seat work; discussion of scales for measuring the achievement of pupils; program making; judgment of text books. Observations, discussions and reports will be required.

Miss BAMBERGER. Saturday, 11.15 a. m.-1 p. m.

9. Experimental Education.

This course deals with psycho-educational processes in action from the scientific point of view, and is based upon a comparative study of investigations in educational research. Emphasis will be placed on methods of approaching educational problems and the application and evaluation of measuring scales and mental tests, including statistical methods of deriving results. Research will be undertaken in problems selected according to the chief interests of individual students.

Professor BUCHNER. Saturday, 11.15 a. m.-1 p. m.

ENGLISH

1. English Composition.

This course will include a review of the essentials of usage, the study of the principles of structure and style, and frequent practice in writing. Weekly themes will be required; these will be returned with written criticisms.

Associate Professor FRENCH and an Assistant. Tuesday and Thursday, 5.10 p. m.

2. The English Novel.

A study of the history and technique of the English Novel from the Middle Ages to the present day. During the first half-year attention is given to the development of narrative types and technique through mediaeval romance, the Renaissance, and the eighteenth century. Portions of the most important novels will be read in a book of selections. The novelists of the nineteenth century are studied during the second half-year, including Miss Austen, Scott, Dickens, Thackeray, George Eliot, Meredith, Hardy, and others. Four representative novels will be used as a basis for close study. Others will be assigned for rapid, supplementary reading.

Professor HOPKINS. Tuesday, 7.45-9.30 p. m.

FRENCH

1. French Elements.

a. Grammar:—Fraser and Squair, *Shorter French Course.*

b. French Texts:— Monvert, *La belle France;* Labiche et Martin, *Le Voyage de Monsieur Perrichon;* About, *La Mère de la Marquise;* Augier et Sandeau, *Le Gendre de Monsieur Poirier;* Daudet, *Contes;* Molière, *L'Avare;* Sand, *La Mare au Diable;* Maupassant, *Contes Choisis;* France, *La Livre de mon Ami;* Mérimée, *Carmen and other Stories;* Bowen, *French Lyrics.*

This course is planned for students beginning the study of French and aims to impart a good reading knowledge of the language. It includes pronunciation, composition, and translation. Upon the successful completion of the course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in French. Graduate and medical students completing this course absolve the requirements in French of candidates for the degree of Doctor of Philosophy and for admission to the Medical School, respectively.

Professor SHEFLOE. Tuesday and Thursday, 4.30-6 p. m.

2. French Reading.

A course in French reading, grammar, and composition, for students who have had the equivalent of Course 1. The texts will be chosen from modern authors, and the exercises in composition will be of a practical nature.

Dr. GRUENBAUM. Tuesday, 4.10-5.50 p. m.

3. Practical French.

Practical exercises in spoken French. The nature of this course will depend upon the previous training of those who wish to follow it. It is intended, however, primarily for those who desire to increase their knowledge of practical modern French.

Dr. GRUENBAUM. Wednesday, 4.10-5.50 p. m.

4. Nineteenth Century Literature.

A study will be made of the general trend in the novel, drama and lyric poetry. Extensive reading and reports upon the authors read will be required, which will be supplemented by lectures in French.

Two periods a week.

GERMAN

1. German Elements.

This course is adapted to those who wish to begin the study of German or who have had a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation, and composition. Upon the successful completion of the work, the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in German. Graduate and medical students completing this course absolve the requirements in German of candidates for the degree of Doctor of Philosophy and for admission to the Medical School, respectively.

Associate Professor ROULSTON. Three hours a week.

2. German Reading.

Modern prose readings with exercises in prose composition. Such writers as Storm, Sudermann, C. F. Meyer, Arnold, Schurz, etc., will be read. This course corresponds to collegiate German 1, and, if satisfactorily completed, will be credited accordingly. The two hours of literature and the one hour of composition may be taken jointly or separately.

Associate Professor ROULSTON. Three hours a week.

3. Practical German.

Practical exercises in spoken and written German. The nature of this course will depend somewhat on the previous training of those who wish to follow it. It is intended, however, primarily for those who desire to increase their knowledge of practical Modern German.

Associate Professor Roulston. Two hours a week. An evening session may be arranged.

4. German Literature.

A. Contemporary Drama and Novel. From Gerhart Hauptmann to Arthur Schnitzler.

Or,

B. 1. Goethe's *Faust*. Part I.
October to February inclusive.

2. German Lyric Poetry. (*The Oxford Book of German Verse*).
March 1 to the end of the year.

Professor Wood. Thursday, 5-7 p. m.

HISTORY

1. American Diplomacy.

A study of the foreign relations of the United States from the Declaration of Independence to the present time, covering the principal disputes to which the United States has been a party, American contributions to international law, relations with Latin America, with the Orient, and with Europe. The course is designed to give a comprehensive view of America's relation to world politics.

Professor Latané. Tuesday and Thursday, 5 p. m.

2. *A*. Modern European History, 1400-1789.

A survey course in early modern history, dealing with the so-called Renaissance, the Reformation, the Old Regime in Europe, and the beginnings of the colonial and dynastic rivalries of the modern European nations.

Or,

B. History of the United States, 1783-1883.

A survey of the political, social and economic history of the United States during the first century of national development. A syllabus will be provided and no single text-book will be used.

Assistant Professor Gallagher. Monday, 8-9.45 p. m.

ITALIAN

The object of this course for beginners will be to acquire a reading knowledge of modern Italian and correct pronunciation. Prose composition will begin as soon as the most elementary part of the grammar has been mastered. The following text-books will be used: Shepard, *Italian Grammar;* Wilkins and Altrocchi, *Italian Short Stories;* Collodi, *Le Avventure di Pinocchio.*

Dr. GRUENBAUM. Thursday, 4.10-5.50 p. m.

LATIN

Classical Literature.

A series of lectures on great representative authors of classical literature from Homer to the Second Centry A. D. Special attention will be given to certain aspects of formal and artistic development and to the growth and influence of literary tradition.

The course will require the reading in translation of the authors studied. A previous knowledge of Greek and Latin is desirable, but not essential.

Professor MUSTARD. Two hours a week, 5 p. m.

MATHEMATICS

Trigonometry and Analytic Geometry.

Prerequisites: Plane Geometry and Algebra.

Professor HULBURT. Two periods a week.

ORIENTAL SEMINARY

The following courses, offered in the Oriental Seminary. presuppose no knowledge of the Hebrew or Greek language:

1. History of the Ancient East (Egypt, Babylonia, Assyria, Persia, Israel, and Judah).

Dr. BLAKE. Wednesday, 5 p. m.

2. Biblical Archæology.

Dr. ROSENAU. Thursday, 5 p. m.

3. The Literature of the Old Testament (with special reference to date and authorship).

Dr. Rosenau. Tuesday, 5 p. m.

4. Interpretation of Selected Chapters of the Authorized Version.

Dr. Blake. Friday, 5 p. m.

PHILOSOPHY

1. Philosophy of Art.

This course includes two parts: (1) a discussion of the general principles underlying our appreciation of the beautiful; (2) a presentation of the æsthetic of the fine arts, as illustrated by the history in Renaissance Italy.

Dr. Slonimsky. Wednesday, 8-9.45 p. m.

(In case of a sufficient demand, a course on the Philosophy of Religion will be given in place of the above.)

2. History of Modern Philosophy.

A survey of the fundamental problems of philosophy, followed by a presentation of the great philosophical systems since the sixteenth century.

Mr. Hammond. Thursday, 8-9.45 p. m.

PSYCHOLOGY

1. Introduction to Scientific Psychology.

A study of the human mind in relation to the activities of the organism. Special attention will be given to the neural basis of consciousness, the development of perception, habit-formation, instinct, emotion, and will.

Professor Dunlap. Monday, 7.45-9.45 p. m.

2. Social Psychology.

The course undertakes a survey of the psychological factors involved in social relations. Such topics are considered as the primary instincts and emotions, imitation and suggestion, efficiency and its evaluation, the family group, and the social function of religion.

The course will be given only for a minimum registration of fifteen.

Professor Dunlap. Tuesday, 8-9.45 p. m.

RUSSIAN

This course will include instruction in elementary grammar, colloquial and written Russian. Practical exercises will be based on standard prose works.

Mr. BREIT. Two hours a week.

SPANISH

1. Spanish Elements.

a. Fuentes and François, *A Practical Spanish Grammar;* oral and written exercises.

b. Hills, *Spanish Tales for Beginners;* Alarcón, *El Capitán Veneno;* Palacio Valdés, *La Hermana San Sulpicio.*

A course intended for beginners. Upon successful completion of this course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in Spanish.

Dr. STEWART. Wednesday and Friday, 4.10 p. m.

2. Practical Spanish.

A practical course in Spanish for those who have had the elements of the language, and who desire to gain a broader knowledge of the literature, together with facility in speaking and writing Spanish.

Two hours a week.

(In case of a sufficient demand, a course in conversational and written Spanish, including composition, in advance of Spanish 2 will also be given.)

3. Spanish Literature.

This course will include the history of Spanish literature, special attention being given to the classic drama and Cervantes, with exercises in oral practice, grammar, and composition.

Two hours a week.

Attendants on the College Courses for Teachers, 1918-1919, 345.

COURSES IN BUSINESS AND SOCIAL ECONOMICS

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and should be filled up and returned on or before October 10, 1919.

MECHANICAL AND ELECTRICAL ENGINEERING BUILDING

INSTRUCTORS

Jacob H. Hollander, Ph. D. Professor of Political Economy.	*Political Economy*
George E. Barnett, Ph. D. Professor of Statistics.	*Investments*
Henry Slonimsky, Ph. D. Associate in Philosophy.	*Social Ethics*
William O. Weyforth, Ph. D. Associate in Political Economy.	*Foreign Trade and Exchange; Business and Social Statistics*
Broadus Mitchell, Ph. D. Instructor in Political Economy.	*Labor Problems; Social Reform*
Joshua Bernhardt, A. B.	*Americanization; Insurance*
J. Earle Uhler, A. B.	*Business English*
J. Wallace Bryan, Ph. D., C. P. A.	*Elementary Accounting*
E. Lyell Gunts, A. B.	*Principles of Advertising*
Evert C. Palmer	*Principles of Salesmanship*

GENERAL STATEMENT

The Johns Hopkins University will offer during the academic year 1919-20 the following series of evening courses of instruction in subjects of direct interest and value to young men and women actually engaged in or contemplating entrance into business, industry and commerce. Such instruction is made available at hours and under conditions designed to meet the convenience of those likely to make use thereof.

SELECTION OF COURSES

Students are advised not to limit their choice of courses to those subjects that are directly related to the particular business or activity in which they are engaged. All students, employed in business or in social service, will find the course in the Elements of Political Economy of particular value, as supplying a sound foundation for the more intelligent pursuit of the specialized courses. Such a general course should, indeed, whenever possible, precede or accompany special courses. The course in Elementary Accounting will be found profitable not only by those who wish to become professional accountants, but by all classes of business men interested in and concerned with the details of the financial organization of modern industry.

While the courses are designed in the main to offer instruction to those engaged in various fields of business and social activity, the instruction will be designed to meet the needs also of those who have a more general interest in the subject.

Instruction in modern languages and in a wide range of subjects ordinarily included in a college curriculum, as well as in engineering subjects, is available in the "Teachers' Courses" and in the "Engineering Courses," offered by this University.

ADMISSION AND ATTENDANCE

There are no formal examinations for admission. Students, both men and women, will be admitted to such courses as they are found qualified by the respective instructors to pursue with advantage. The satisfactory completion of any of these courses will be recognized by the award of a certificate of attendance. Credits so received may be used, upon matriculation, towards the degree of Bachelor of Science.

Students are advised to register as far in advance of the opening of the session as may be possible. The office (Gilman Hall, Room 219) will be open for registration daily from 9 a. m. to 5 p. m. Registration blanks may be obtained by written application to the Registrar.

A preliminary assembly of all students who wish to attend the courses will be held on Friday, October 10, at 8 p. m., in the Civil Engineering Building. Opportunity for registration will also be afforded at this time. Instruction will begin on Monday, October 13, and proceed in accordance with the schedule of the courses.

LOCATION

The courses in Investments and Foreign Trade and Exchange will be given in the rooms of the Baltimore Chapter of the American Institute of Banking, 15 South street; all other courses in the Mechanical Engineering Building (Charles and Thirty-second streets).

TUITION FEES

The tuition fee is $20.00 for each course of two hours weekly extending through the academic year. Fees are payable at the office of the Treasurer (Gilman Hall, 121).

COURSES OF INSTRUCTION

Political Economy

The purpose of the course will be to acquaint those who are engaged in practical affairs with some knowledge of the principles underlying the modern industrial world. With this intention, the first half-year will be devoted to an elementary study of economic theory. Attention will be given to the well established doctrines of the science rather than to the unsettled issues. In the second half-year the practical application of economic principles to the problems of the business world will be considered. Such questions as productive efficiency, the growth of population, the wages question, the circulating medium, international trade, rent and interest, and taxation will be discussed.

Professor Hollander. Tuesday, 8-10 p. m.

Investments

The more important topics covered in this course include: an analysis of the essentials of a good investment, a historical study of the rate of interest and of periodic fluctuations in the rate, definition of the essential legal characteristics of the various debt instruments and especially of the mortgage, historical and analytical description of the more important forms of investment, such as Government, State and municipal bonds, securities of private corporations, and real estate mortgages, theories of valuation and amortization.

Professor Barnett. Wednesday, 8-10 p. m.

Note: This course will be given in coöperation with the Baltimore Chapter of the American Institute of Banking and the class will meet in the rooms of the Chapter, 15 South Street. Members of the Chapter will make arrangements for admission to the course with the officers of the Chapter. Other persons who desire to take the course will enroll through the University on the payment of the usual fee of $20.

Social Ethics

This course is an attempt to formulate a theory of progress from the standpoint of ethics; and to analyze and appraise the existing social institutions—the state, the economic order, and the family—in the light of that theory. The ethical standard that serves as foundation may be described as rational idealism, as opposed to the instinctive idealism which dominates the thought and conduct of the age; *i. e.*, it is an idealism grounded on the established facts and generalizations of the life-sciences,—biology, psychology, sociology. The ethical test of any age lies in the ethical value of its institutions, the great social institution being the embodied expression of the moral consciousness of that age; and the present course is an attempt to appraise that value, *i. e.*, to measure the true progress of the age by ascertaining the true value of the institutions for the sole ends which they should subserve, namely, human happiness and moral efficiency. The analysis shows that civilization does not necessarily mean progress, that much of our present progress is specious, and in conclusion points out the lines of reconstruction.

Dr. SLONIMSKY. Monday, 8-10 p. m.

BUSINESS AND SOCIAL STATISTICS

In this course a study will be made of statistical methods and their application to business and social problems. The collection, presentation, and analysis of statistical data will be considered, and common errors in the use of statistics will be pointed out. Study will be made of the nature and use of various types of averages and of the methods of comparing statistical data. The principles of making index numbers will be taken up with special reference to price index numbers. Particular attention will be given to diagrammatic and graphical methods of presentation. The use of statistics in the analysis of business and social conditions and some of the more important sources of statistical information dealing with these conditions will be pointed out.

Dr. WEYFORTH. Tuesday, 8-10 p. m.

FOREIGN TRADE AND EXCHANGE

An analysis will be made of the economic principles underlying international trade, the tariff policies of the leading commercial nations will be examined, and the methods and organization of foreign trade and exchange considered. A study will be made of selling practices in foreign trade, of export-trade combinations and their possibilities under the Webb law, and of various governmental agencies for the promotion of foreign trade, such as the consular service, commercial attaches, and the Bureau of Foreign and Domestic Commerce. Special attention will be given to the financial aspects of the subject, including the development of foreign investments, the establishment of branch banks, and the problems of foreign exchange.

Dr. WEYFORTH. Friday, 8-10 p. m.

NOTE: This course will be given in coöperation with the Baltimore Chapter of the American Institute of Banking and the class will meet in the rooms of the Chapter, 15 South Street. Members of the Chapter will make arrangements for admission to the course with the officers of the Chapter. Other persons who desire to take the course will enroll through the University on the payment of the usual fee of $20.

SOCIAL REFORM

The lectures will fall naturally into two groups, one dealing with the various panaceas that have been brought forward by those who would change the economic order, and the other covering less thorough-going expedients which have been proposed or put into practice. Thus, under the first heading, the single tax, socialism, philosophical anarchism and syndicalism will be studied. The effort will be not only to explain the practical demands of these schemes for the betterment of society, but to look back of every program to discover the essential economic philosophy which inspired it. For this reason, it is highly desirable that persons taking this course should have had some economic training.

In the second part of the year, study will be made of the proposals of those who prefer modification of the existing order rather than social upheaval. Such devices as profit sharing, the minimum wage, social insurance and improvement of distribution through certain kinds of taxes will be outlined.

Dr. MITCHELL. Monday, 8-10 p. m.

LABOR PROBLEMS

The course aims to show the place of labor as an economic factor. It deals both with organized and unorganized labor. In treating of the former, the history of the organization of workmen will be traced, especially with reference to the United States; the types of unions will be discussed, together with the methods used by employes and employers. The economic problems to which the organization of labor gives rise will be studied, and an attempt made to estimate the social justification for such associations among workers. In dealing with the subject of unorganized labor, some of the larger aspects of economic theory will be drawn into consideration. A part of the course will be devoted to the history of the change in the attitude of the law toward labor; the individualist conceptions of the English common law will be watched until they are gradually transformed into principles which recognize the social character of the labor factor. Members of the class will be asked to report on various phases of the subject.

Dr. MITCHELL. Wednesday, 8-10 p. m.

AMERICANIZATION

This course is aimed, primarily, to meet the requirements (a) of those social workers who come in contact with problems relating to the immigrant, and (b) of the teachers of immigrants.

The course will consist of three parts:

1. A brief historical survey for each of the principal national or racial groups which have emigrated to the United States in recent years, including an inquiry into the special causes for emigration of the various groups.

2. A study of the social and economic problems emerging from the concentration of the immigrant in the large industrial centers of the United States, both from the viewpoint of the immigrant and of the community.

3. The development of a practical social program to correlate the activities of those social agencies in a community which are either already employed or may be utilized in the immediate future in meeting the problems involved in the Americanization of the immigrant, with special emphasis on the effective methods of instructing the immigrant in English and in the duties of citizenship.

Mr. BERNHARDT. Friday, 8-10 p. m.

PRINCIPLES OF INSURANCE

The aim of the course is to train the student to understand and apply the general principles that underly all forms of insurance. Concretely, the course will cover the following topics: the statistical basis of insurance, its history and present state, the theory of mortality and other insurance tables, the adaptation of the form of the insurance policy to the needs of the insured, description and discussion of various forms of policy, the theory of reserves, description of the more important forms of insurance carriers and the leading principles of the law of insurance. Illustrations will be drawn from the four most important forms of insurance—life, fire, compensation and fidelity.

Mr. BERNHARDT. Thursday, 8-10 p. m.

BUSINESS ENGLISH

This course devotes the first half-year to the study of grammatical usage and structure, requiring weekly themes on commercial topics of general importance, such as the letter of credit, the clearing house, royalty, patent, bill of lading, income tax, mortgage. During the second half-year, the class studies the composition of such business letters as those of recommendation, introduction and application, and those of buyer, seller and collector, as well as advertisements, reports and office notices. Special attention is given to the style of commercial forms. The reading of selected books is prescribed, among them being Palmer's *Self-Cultivation in English* and *Trades and Professions,* Husband's *America at Work,* and Eliot's *Training for an Effective Life.*

Mr. UHLER. Thursday, 8-10 p. m.

ELEMENTARY ACCOUNTING

This course presents the fundamentals of accounting theory and practice. It is designed to afford, not only a basis for more advanced studies in accountancy, but also a practical familiarity with financial records and statements that will be useful in every-day business activities. To these ends, the underlying principles of accounting science will be analyzed, and an explanation given of single and double-entry bookkeeping, the types and functions of books in general use, and the scope and purposes of the various accounts and statements. There will be instruction and practice in the opening, operation, adjustment and closing of books and accounts, the construction and analysis of financial statements, and the solution of practical problems. The course will be comprehensive, but non-technical, in order that it may be available to persons who have no knowledge of bookkeeping, as well as to bookkeepers who wish to broaden their view of the science on which their profession is founded.

Dr. BRYAN. Thursday, 8-10 p. m.

PRINCIPLES OF ADVERTISING

The course will include the study of ways and means to analyze a market—market conditions and competition, as well as methods of distribution, merchandising and planning of a selling and advertising campaign from beginning to end. The mechanics of advertising will be fully treated. Buying motives will be studied and classified according to their relative importance. The relation of advertising to selling will be discussed. Practice will be given in layouts and copy writing. Commercial art will be treated from all angles. Methods of determining the value of advertising media will be an important feature of the course. Sales and advertising organization building will be analyzed and agency methods fully explained. The course will have a two-fold interest—first to the man or woman in business who desires to understand the relation of advertising to merchandising, and second to the student who expects to make advertising a life work.

Mr. GUNTS. Thursday, 8-10 p. m.

PRINCIPLES OF SALESMANSHIP

This course covers (a) the definite selling principles which are the basis for successful salesmanship; (b) the elements of business psychology including a comprehensive treatment of the buying motives which will enable the salesman to determine the keynote of the interview; (c) character analysis; (d) developing personality; this subject includes special tests to determine the strength of the sales presentation. It also includes studies in the qualities of character, in the art of concentration and constructive work that will assist in overcoming personal faults; (e) the art of selling—that is, the application of these principles in actual work; (f) selling by mail; (g) principles of salesmanagement; and (h) tests and research work.

Mr. PALMER. Wednesday, 8-10 p. m.

Attendants on the Courses in Business Economics, 1918-1919, 242.

NIGHT COURSES FOR TECHNICAL WORKERS

A blank form of application for admission to these courses is enclosed herewith, or it may be obtained from the Registrar of the Johns Hopkins University. This should be filled up and returned on or before October 6, 1919.

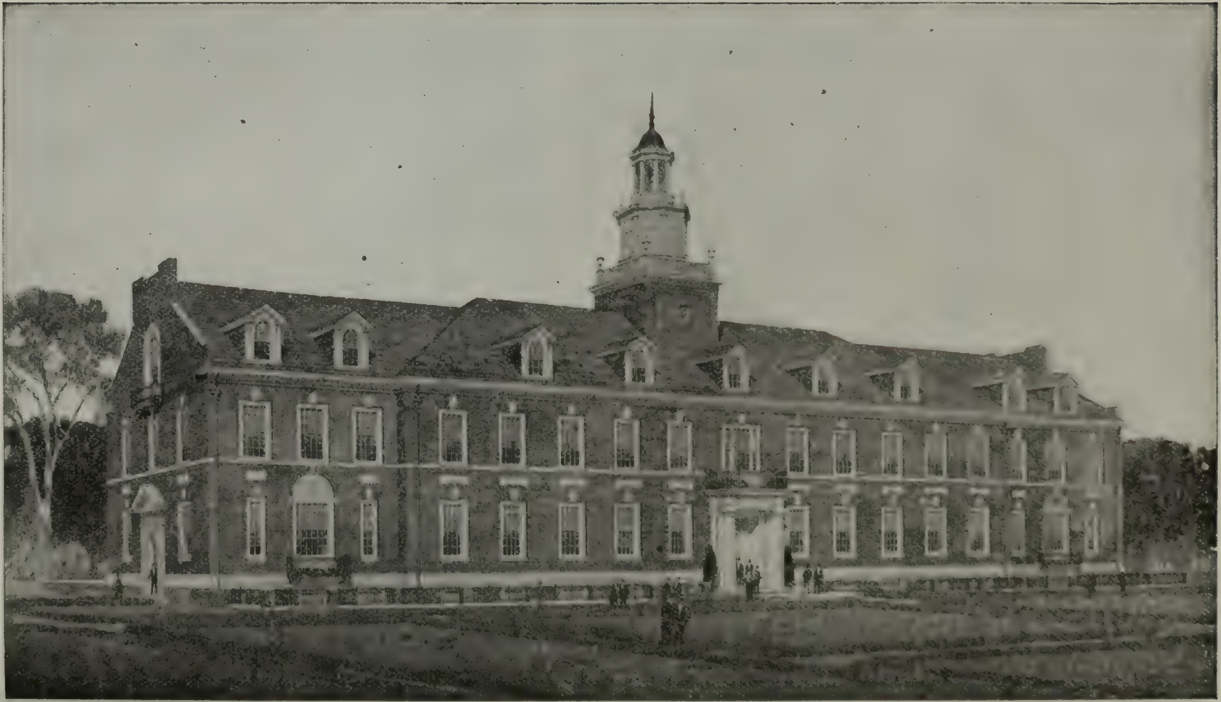
Instructors will hold consultation hours from 7.30 to 9.30 p. m., October 8, 9, and 10, in the Engineering Buildings at Homewood. The best entrance to the grounds is at Charles and Thirty-second streets.

COMMITTEE ON NIGHT COURSES FOR TECHNICAL WORKERS

ALEXANDER G. CHRISTIE, *Associate Professor of Mechanical Engineering,* Chairman.

JOHN B. WHITEHEAD, *Professor of Electrical Engineering.*

(To be appointed) *Professor of Civil Engineering.*



CIVIL ENGINEERING BUILDING

INSTRUCTORS

Lorrain S. Hulburt, Ph. D. Collegiate Professor of Mathematics.	*Mathematics*
John B. Whitehead, Ph. D. Professor of Electrical Engineering.	*Electrical Engineering*
J. Elliott Gilpin, Ph. D. Collegiate Professor of Chemistry.	*Chemistry*
(To be appointed) Professor of Civil Engineering.	*Civil Engineering*
Alexander G. Christie, M. E. Associate Professor of Mechanical Engineering.	*Mechanical Engineering*
James B. Arthur Associate Professor of Electrical Engineering.	*Electrical Engineering*
Julian C. Smallwood, M. E. Associate in Mechanical Engineering.	*Mechanical Engineering*
Ellis Miller, Ph. D. Associate in Chemistry.	*Chemistry*
Clarence E. Coolidge, Ph. B. Instructor in Mechanical Engineering.	*Mechanical Engineering*
Alexander E. Bauhan, E. E. Instructor in Electrical Engineering.	*Electrical Engineering*

GENERAL STATEMENT

The Department of Engineering of the Johns Hopkins University announces a series of evening courses in various branches of Engineering and in Chemistry and Mathematics for the season 1919-20. These courses will be given in the Engineering Buildings at Homewood, which may be reached from the entrance to the grounds at Charles and Thirty-second streets. The courses are especially prepared for those who wish to improve their technical training, but who are prevented by professional or other occupations from availing themselves of the regular day courses offered in the University. For the special benefit of the students taking Night Courses, an endeavor has been made to have these courses conducted by members of the instructional staff who teach similar subjects to the regular day students.

The courses are given primarily for those who, without reference to an academic degree, wish to avail themselves of the opportunity to study special or general subjects in which they are interested The amount of previous preparation necessary differs for the various courses and is stated separately for each course.

The Night Courses as now given do not lead to a degree. A special certificate is granted by the Johns Hopkins University to each student who has satisfactorily completed a course in any subject.

The Department of Engineering has given these evening courses for the past three years. They have been attended by a large number of students in spite of war conditions, which indicated that there was a real demand for such Night Courses for Technical Workers. The war has emphasized the great value of higher technical training. Such training will be valued even more highly in the future in the commercial life of the coming years. All indications point towards larger classes than ever during the coming year.

The work for the year 1919-20 has been planned so that those who have pursued evening classes during the past years will be able to continue in more advanced courses during the coming year. At the same time provision has been made for the entering class of new students. New courses in Advanced Electrical Engineering and in Reinforced Concrete have been added, for which a demand seems to exist. By special request the course on Industrial Organization, which had a very large attendance three years ago, will also be offered this year.

Instruction in the evening courses will begin on Monday, October 13, 1919. Each prospective student is advised to consult with the instructor in charge of the course he intends to take, before finally registering in that course. An opportunity for such consultation with instructors will be given from 7.30 to 9 p. m., on Wednesday, Thursday, and Friday evenings, October 8, 9, and 10, in the Engineering Buildings at Homewood. The University may be reached by car lines 17 or 29 from downtown.

APPLICATION FOR ADMISSION

Application for admission should be made on the blank form enclosed herewith; it may also be obtained from the Registrar of the University. The application should be mailed to the Registrar, so as to be received not later than October 6. This is requested in order that the applications may be examined in a preliminary way before the consultation periods on October 8, 9, and 10. Filling out and submitting the application blank carries with it no obligation to undertake the work, if upon consultation with the instructor the student decides otherwise.

The Committee in charge of Night Courses reserves the right to withdraw any of the courses offered, if in its opinion there are too few students registered to warrant giving the course.

ADVISERS

In general the instructor in the course in which the student registers will act as his adviser during the year. During the consultation periods the student may interview several instructors before deciding on the course he wishes to take. The names of the instructors and the rooms in which they may be found will be posted at the entrance to the Electrical and Mechanical Building during registration. In case of difficulty, the chairman of the Committee on Night Courses may be consulted.

FEES

The cost of instruction is the same as for the College Courses for Teachers, $10 a year for each hour per week. Regular courses in any subject given one evening a week (two hours) cost $20 per year; courses occupying two evenings a week $40 per year. In the Chemistry courses there is an additional laboratory fee of $15, making the total cost of each of these courses $55 per year. Fees may be paid, if desired, in two instalments, the first on registration.

COURSES OF INSTRUCTION

MATHEMATICS—1 N

An Elementary Course in Plane Trigonometry and Analytic Geometry. Professor HULBURT. *Two evenings a week.* Mechanical and Electrical Engineering Building.

The course in Mathematics is provided to meet the needs of students proposing to undertake work in the engineering subjects, but who are insufficiently prepared to enter the courses.

It is designed for beginners in the subjects of Trigonometry and Analytic Geometry, and is open to all students who have had some instruction in Algebra and Plane Geometry. The first part of the course will be devoted to Plane Trigonometry and will include the solution of triangles and so much of the formulæ of Trigonometry as will be needed for the study of Analytic Geometry and Calculus. The remainder of the course will be given to Plane Analytic Geometry. This work will cover the subjects of the Straight Line, Circle, Conics, some Curves of Higher Order, and, if time permits, an introduction to the study of the Calculus.

CHEMISTRY

Professor GILPIN, Dr. MILLER, and assistants. *Two evenings a week for each course.* Civil Engineering Building, Room 114 and laboratory.

These courses are designed to meet the needs of several classes of students: those who are unable to follow a regular college course, and wish to pursue work in Chemistry alone; those who are working in analytical or industrial laboratories and wish to increase their knowledge of the theoretical principles of the subject or pursue work of a more advanced character than that which they have already taken; those who wish, by taking the course in Organic Chemistry, to prepare for the Medical School, the School of Hygiene, or work in Domestic Science. The courses are arranged so that one can take them in the following order: General inorganic chemistry, qualitative and quantitative analysis, organic chemistry. With outside reading and work in industrial laboratories, a good general training can be acquired in three or four years. A previous knowledge of physics is of great assistance to one taking work in Chemistry. The following courses will be given in 1919-20 provided the enrollment justifies them.

Chemistry 1 N. General Inorganic Chemistry.

One lecture (2 hours) and one laboratory period (2½ hours) each week. No previous knowledge of chemistry is required for this course. The work covers the general principles and laws of chemistry and a study of the more important metallic and non-metallic elements. In the laboratory selected experiments illustrating the preparation, properties and reactions of inorganic substances and the applications of chemical laws are performed. Those who have had laboratory practice, but no systematic instruction in Chemistry, will find this course very helpful.

Chemistry 2 N. Qualitative and Quantitative Analysis.

This course will be largely a laboratory course with two sessions (2½ hours each) each week. Occasionally a part or all of a session will be given up to a discussion of the theoretical principles of the reactions being studied. As the laboratory work is of an individual character, an effort will be made to meet the needs of each student in the kind of work assigned.

Practice in the methods of gravimetric and volumetric quantitative analysis will be given, as such work is essential for one looking forward to a position in an industrial laboratory.

Chemistry 3 N. Organic Chemistry.

One lecture (2 hours) and one laboratory (2½ hours) each week. A systematic course in the general principles of organic chemistry and the properties and reaction of the paraffin and benzene derivatives. It will be possible to arrange the laboratory work to satisfy the condition for entrance into the medical schools.

CIVIL ENGINEERING

[Instructors to be appointed.] Civil Engineering Building.

Civil Engineering 1 N. Reinforced Concrete Construction.

Two evenings a week.

This course is intended for those engaged in building construction and who have a fair knowledge of the elements of structures and of field methods.

It will include the Theory of Reinforced Concrete Design and Foundations together with practical problems illustrating the theory.

The following constructions will be discussed: slabs, beams, columns, footings, retaining walls, dams, foundations and an introduction to arches.

Preparation required: A knowledge of algebra, trigonometry, plane geometry and calculus, together with the elements of structural design.

ELECTRICAL ENGINEERING

Professor WHITEHEAD, Associate Professor ARTHUR, and Mr. BAUHAN. Mechanical and Electrical Engineering Building.

Electrical Engineering 1 N. Elements of Electricity and Magnetism and Direct Current Machinery. Mr. BAUHAN. *Two evenings a week.*

The aim of the course is to give the simpler relations of fundamental electrical theory in such form as to allow the student to make immediate practical applications of them. The first half-year is spent in the classroom, and in the second half-year the time is divided between the classroom and the laboratory.

The subjects discussed are the following: Magnets and Magnetism, Electromagnetism, Ohm's Law, Electric Circuits, Power, Power Measurements, Measurements of Resistance, Measurements of Current, Measurements of Potential, Magnetic Fields due to a Current, Ferro-Magnetism, Electromagnetic Induction, The Generator, The Motor, Inductance, Capacity, Electrolysis.

Preparation required: A knowledge of Arithmetic and the simpler elements of Algebra.

Text-books: "Elements of Electricity," by Timbie; "Experimental Electrical Engineering," by V. Karapetoff.

Electrical Engineering 2 N. Elementary Alternating Currents. Associate Professor ARTHUR. *Two evenings a week.*

This course is a continuation of Course 1. Instruction is given in both classroom and laboratory, and covers the following subjects: Frequency, Phase, Vector Diagrams of Simple Circuits, Resistance in A. C. Circuit, Inductive Reactance, Capacity Resistance, Impedance, Series and Parallel Circuits, Power Factor, A. C. Instruments, Simple Working Principle of the Transformer, of Alternator, of Synchronous Motor, of Induction Motor, of Synchronous Converter.

Preparation required: A knowledge of Trigonometry and the elements of Calculus.

Text-books: "Alternating Current Electricity," by Timbie and Higbie; "Experimental Electrical Engineering," by V. Karapetoff.

Electrical Engineering 3 N. General Electrical Engineering. Advanced Course. Professor WHITEHEAD. *One evening a week.*

This course is open to those who have completed courses 1 and 2, or their equivalent. It will not be given unless there are at least ten applicants.

The subjects treated will be Electric Power Transmission and Distribution, Motor Applications and Electric Illumination. The work will consist of lectures, problems, recitations and conferences.

MECHANICAL ENGINEERING

Professor CHRISTIE, Mr. SMALLWOOD, and Mr. COOLIDGE. Mechanical and Electrical Engineering Building.

Mechanical Engineering 1 N. Machine Design. Mr. COOLIDGE. *Two evenings a week.*

This course has been arranged to satisfy the requirements of operating executives, foremen, machine designers, draftsmen, and sales engineers connected with plants where a general variety of machines is constructed. Registrants will have the opportunity to investigate the many considerations involved in commercial machine design.

Some of the detailed features of the course will include the following: An investigation of the engineering materials available for machine construction; a discussion of their physical and other properties, such as their susceptibility to surface lubrication, etc.; an analysis of the various static and kinetic loads imposed on machine members; the relative motion of machine members to each other together with their dynamic effects; the proper economical selection of combinations of material; the proportional dimensions for balancing the external loads imposed; a discussion of the more common elementary components in assembled machines, such as machine frames and their attachments, bolts, keys, pins, riveted joints, brakes, clutches, springs, crank and other shafts, tubes, pipes, bearings, flywheels, pulleys, rotating discs, belting, screws; machine balancing; the general application of motor drives, etc.

During the course certain specimens of materials will be subjected to test loads in the testing machines in the laboratory to determine their physical properties.

Preparation required: Registrants in this course are expected to be practical men of mechanical experience, having had previous instruction in algebraic equations, plane geometry and simple trigonometry.

Mechanical Engineering 2 N. Heat Engines. Mr. SMALLWOOD. *Two evenings a week.*

This is a practical course connecting the theory of heat engines with engine and boiler room practice. The theory is taught partly by lectures and text-book study and partly by working numerous problems which are selected with reference to their practical application in power plant operation.

The subject matter treated in the classroom is as follows: Sources of energy; laws of heat transformation; the action and cycles of perfect gases with special reference to engineering applications, as in gas engines and air compressor work; the properties of steam; expansion, losses, cycles, and efficiencies of steam in steam engines; mechanical construction, operation, and regulation of various types of steam engines and turbines; analysis of the simple-slide valve, automatic cut-off valves, Corliss valves, etc.; theory, construction, and regulation of various types of gas and oil engines and gas producers. The analysis of combustion of coals, oils, and gases with special reference to the determination of losses and efficiencies in boiler room and gas engine practice; refrigerating and air compressing machinery; power plant auxiliaries. These classroom subjects are supplemented by laboratory periods, in which the more important power plant units are tested by the students.

Preparation required: Mathematics, including elements of Trigonometry, and elements of Physics and Chemistry.

Text-book: "Elements of Heat-Power Engineering," by Hirshfeld and Barnard.

Mechanical Engineering 3 N. Power Plant Engineering. Professor CHRISTIE. *One evening a week.*

This short course in Power Plant Engineering deals with the scientific and commercial methods of proportioning the various elements of a power plant, together with a discussion of the practical application of the underlying theory in each case. This includes boilers, fuels, furnaces, chimneys, boiler room auxiliaries, piping, feed water treatment, heating systems, engines and turbines, condensers, etc. Consideration is given to costs in each case. Next a power plant design is worked out from a given load curve. Methods are developed for estimating the cost of power production with the selected apparatus and the fixing of rates on the basis of these costs.

Emphasis is laid throughout the course on methods of improving plant performance and on the present trend of development of power plant equipment.

Preparation required: Heat engines or a similar course in applied thermodynamics.

Text-book: "Mechanical Equipment of Buildings," Vol. 2, by Willard and Harding.

Mechanical Engineering 4 N. Industrial Organization. Professor CHRISTIE. *One evening a week.*

This course is intended for mechanics, foremen, office clerks, engineers, executive officials, and all interested in the fundamental principles governing the economical organization of an industrial plant to produce goods in quantity. Modern problems of shop management are fully discussed.

The course is offered in response to a demand for instruction in the methods of organizing and planning manufacturing processes.

The subject matter of the course includes the following: A brief economic history of industry to indicate the cause of present labor troubles. A study of the principles of industrial organization as applied to productive industries. Modern industrial tendencies, forms of ownership, types of organization, the functions of a conventional factory organization and its system for handling orders. Storekeeping methods. Planning, routing, and scheduling work. Shop records and costs; wage payment; betterment plans; safety-first organization; employment methods; burden and depreciation. Plant location and arrangement.

The second part of the course deals with engineering contracts and specifications and with some portions of commercial law.

Text-book: Kimball's "Principles of Industrial Organization" and notes.

Attendants on the Night Courses for Technical Workers:

1917-18	208
1918-19	157

The Johns Hopkins Press of Baltimore

American Journal of Insanity. E. N. Brush, J. M. Mosher, C. K. Clarke, C. M. Campbell and A. M. Barrett, Editors. Quarterly. 8vo. Volume LXXV in progress. $5 per volume. (Foreign postage, fifty cents.)

American Journal of Mathematics. Edited by Frank Morley, with the coöperation of A. Cohen, Charlotte A. Scott, A. B. Coble, and other mathematicians. Quarterly. 4to. Volume XLI in progress. $6 per volume. (Foreign postage, fifty cents.)

American Journal of Philology. B. L. Gildersleeve and C. W. E. Miller, Editors. Quarterly. 8vo. Volume XL in progress. $3 per volume. (Foreign postage fifty cents.)

Beiträge zur Assyriologie und semitischen Sprachwissenschaft. Paul Haupt and Friedrich Delitzsch, Editors. Volume X in progress.

Elliott Monographs in the Romance Languages and Literatures. E. C. Armstrong, Editor. 8vo. $3 per series. Six numbers have appeared.

Hesperia. Hermann Collitz, Henry Wood and James W. Bright, Editors. Thirteen numbers have appeared.

Johns Hopkins Hospital Bulletin. Monthly. 4to. Volume XXX in progress. $3 per year. (Foreign postage, fifty cents.)

Johns Hopkins Hospital Reports. 8vo. Volume XIX in progress. $5 per volume. (Foreign postage, fifty cents.)

Johns Hopkins University Circular, including the President's Report, Annual Register, and Medical Department Catalogue. T. R. Ball, Editor. Monthly (except August and September.) 8vo. $1 per year.

Johns Hopkins University Studies in Education. E. F. Buchner and C. M. Campbell, Editors. 8vo. Two numbers have appeared.

Johns Hopkins University Studies in Historical and Political Science. Under the direction of the Departments of History, Political Economy, and Political Science. Monthly. 8vo. Volume XXXVII in progress. $3.50 per volume.

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COLLEGE COURSES FOR TEACHERS,
1920-1921

PROCEEDINGS OF THE UNIVERSITY PHILOLOGICAL ASSOCIATION, 1919-1920

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UNIVERSITY OF ILLINOIS

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BALTIMORE
The Johns Hopkins Press
1920

COLLEGE COURSES FOR TEACHERS

CALENDAR, 1920-1921

College Courses for Teachers begin Monday, October 4, 1920.

Thanksgiving Day falls on Thursday, November 25, 1920. *All classes suspended.*

The Christmas Recess begins Friday morning, December 24, 1920.

Exercises will be resumed Monday afternoon, January 3, 1921.

College Courses for Teachers Mid-year Examinations begin February 2, 1921.

Commemoration Day will be observed Tuesday, February 22, 1921. *All classes suspended.*

The Spring Recess begins Thursday morning, March 24, and closes Wednesday evening, March 31, 1921.

College Courses for Teachers close Saturday, May 28, 1921.

REGISTRATION

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up by those *not previously registered* and returned to the Director on or before October 1, 1920. Registration of former students should be made on or before October 2.

The Director may be found in Room 217, Gilman Hall, Homewood, daily from September 20 to October 1 (3–5 p. m., Monday to Friday; 10 a. m., Saturday).

COLLEGE COURSES FOR TEACHERS

INSTRUCTORS

Paul Haupt, Ph. D. W. W. Spence Professor of the Semitic Languages.	*Biblical Literature*
James W. Bright, Ph. D. Caroline Donovan Professor of English Literature.	*Anglo-Saxon*
Lorrain S. Hulburt, Ph. D. Collegiate Professor of Mathematics.	*Mathematics*
Wilfred P. Mustard, Ph. D. Professor of Latin.	*Latin*
Edward F. Buchner, Ph. D. Director of the College Courses for Teachers; Professor of Education.	*Education*
David M. Robinson, Ph. D. W. H. C. Vickers Professor of Archæology.	*Art*
J. Elliott Gilpin, Ph. D. Collegiate Professor of Chemistry.	*Chemistry*
Knight Dunlap, Ph. D. Professor of Experimental Psychology.	*Psychology*
Gilbert Chinard, L. ès L. Professor of French.	*French*
Tenney Frank, Ph. D. Professor of Latin.	*Latin*
H. Carrington Lancaster, Ph. D. Professor of French Literature.	*French*
John C. French, Ph. D. Associate Professor of English.	*English*
Robert B. Roulston, Ph. D. Associate Professor of German.	*German*
Florence E. Bamberger, A. M. Associate Professor of Education.	*Education*
Buford J. Johnson, Ph. D. Associate Professor of Psychology.	*Psychology*
Frank R. Blake, Ph. D. Associate in Oriental Languages.	*Ancient History*
Gustav Gruenbaum, Ph. D. Associate in Romance Languages.	*French and Italian*
Samuel E. Whiteman. Instructor in Drawing.	*Drawing*

David E. Weglein, Ph. D.	Instructor in Education.	*Education*
Charles C. Thach, M. S.	Assistant in History and Political Science.	*Political Science*
Felix S. Cabello, A. B.	Instructor in Spanish.	*Spanish*
Ray M. Merrill, A. M.	Instructor in French.	*French*
Henry Slonimsky, Ph. D.	Lecturer in Philosophy.	*Philosophy*
Albert L. Hammond, A. B.	Instructor in Philosophy.	*Philosophy*
Francis A. Litz, A. B.	Instructor in English.	*English*
John F. King, A. B.	Assistant in Chemistry.	*Chemistry*
James E. Sharp, S. B.	Assistant in Chemistry.	*Chemistry*
William F. Albright, Ph. D.		*Oriental Religions*
Alfred Breit		*Russian*
Victor Dulac, Ph. D.		*French*
G. Ellis Porter, A. B.	Editorial Staff of *The Sun,* Baltimore.	*Journalism*
Jonathan T. Rorer, Ph. D.	Head of Department of Mathematics, The William Penn High School, Philadelphia, Pa.	*Education*
Sarah E. Simons, A. M.	Head of Department of English, High Schools, The District of Columbia.	*Education*
Florence L. Speare		*English*
Hans Froelicher, Ph. D.	Professor of German and of Art Criticism in Goucher College.	*Art*
Annette B. Hopkins, Ph. D.	Professor of English in Goucher College.	*English*
Ernest P. Kuhl, Ph. D.	Professor of English in Goucher College.	*English*
Raymond P. Dougherty, Ph. D.	Professor of Biblical Literature in Goucher College.	*Old Testament Literature*
Katherine J. Gallagher, Ph. D.	Professor of History in Goucher College.	*History*

GENERAL STATEMENT

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work was done without any reference to credit toward an academic degree.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with Goucher College, has offered since 1909 courses of instruction to teachers and others whose vocations prevent their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1920-1921. It is the primary aim of these courses to provide teachers in public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in the academic department. In order to give further encouragement to teachers in service and others to carry on extended systematic study, this plan of instruction also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degrees of Bachelor of Art and Bachelor of Science.

Persons other than teachers will, as in the past, be admitted to these courses. They will be expected to present the proper qualifications for the subjects and courses they desire to pursue.

ADMISSION

The preparatory training desirable for the successful pursuit of these courses is that represented by the completion of a standard four-year high school course. In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course. Persons may be admitted to the courses either with or without reference to the baccalaureate degrees.

THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered by the Johns Hopkins University to both men and women completing the required courses of study in the College Courses for Teachers and in the Summer Courses, in accordance with the following regulations:

Those who wish to become candidates for the degree of Bachelor of Science must present evidence of having successfully completed courses of study equivalent to the graduating requirements of a standard four-year high school. This evidence may be offered by either of the following means:

1. Presenting certificates:
    - (a) Of graduation from a secondary school having a course of study of four years, and approved by the Committee on Matriculation.
    - (b) Of the College Entrance Examination Board, or other approved examining boards.

2. Passing an examination.

Fifteen units of secondary instruction are required for matriculation, of which nine are prescribed and six are elective. The subjects in which the prescribed units must be offered are:

> English (*three*), History (*one*), Mathematics (Algebra and Geometry) (*two*), a Modern Foreign Language (*two*), Science (*one*).

The remaining six units may be offered by election from the following group, the number of additional units accepted in the several prescribed subjects being indicated in parentheses:

> Domestic Science (*one*) or Manual Training (*one*), Drawing (*one*), History (*one,* or *two*), Latin (*two,* or *three,* or *four*), Mathematics (*one,* or *one and a half*), Modern Foreign Language (*two,* or *three,* or *four*), Music (*one,* or *two*), Science (*one,* or *two*), Book-keeping (*one*), Commercial Arithmetic (*one*), Commercial Geography (*one*), Commercial Law (*one*).

Advanced standing may be granted to applicants who offer approved collegiate or professional courses in a college, scientific school, normal school, training school, or technical school in advance of high school graduation.

The course of study enabling the candidate to meet the graduation requirements is made flexible so as to permit a choice of courses in various subjects, within limits, in accordance with the future work of the student.

The requirements are:

1. A series of subjects required of all matriculated students, namely:

> English, two courses; Foreign Languages, three courses in at least two languages; History, one course; Science, one course.

2. A major consisting of three courses in one subject and of two courses in one or two cognate subjects. Required courses may not be counted as part of the work in the major.

3. Electives sufficient to complete the requirement of one hundred and twenty points.

All candidates for the degree must complete a minimum of twenty-four points in the College Courses for Teachers. The maximum credit allowed a student in one summer session is eight points.

By a plan of co-operation with the Maryland Institute of Baltimore, provision has been made whereby candidates for the degree who desire to offer a major in art may do so by completing the following courses:

I. Drawing: Freehand drawing, first year, 6 hours; drawing from the antique, second year, 6 hours; still-life and portrait drawing, third year, 6 or 9 hours; life drawing, fourth year, 6 or 9 hours.

II. Cognate courses: Design, 6 hours, and history of art, 2 hours. The first-year drawing may, and the history of art courses must, be taken at the University. The maximum amount of credit allowed for drawing is seventeen points.

The Maryland Institute is also announcing a special Normal Art Course for the training of teachers and supervisors of art in public schools. Certain courses in education at the University form a part of this special course.

Similar provision has been made, in co-operation with the Peabody Conservatory of Music, of Baltimore, whereby candidates for the degree who desire to offer a major in music may do so by completing at the Conservatory the following regular courses:

Musical literature, history of music, musical pedagogy, normal class, harmony and harmonic analysis, ear training, and at least one main branch, as piano, organ, violin, 'cello, voice, harmony, or school music. The maximum amount of credit allowed for a major in music is twenty-three points. Candidates completing a major in music may offer more than one main branch.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. In the case of women who may desire to become candidates for the degree of Bachelor of Arts, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the academic department of the Johns Hopkins University in the case of those men who desire to proceed to the degree of Bachelor of Arts.

THE DEGREE OF BACHELOR OF ARTS

Those who wish to become candidates for the degree of Bachelor of Arts in this University are referred to the circular descriptive of The College of Arts and Sciences of the Johns Hopkins University, 1920, for a detailed statement of the requirements for matriculation.

Those who desire to become candidates for the same degree in Goucher College are referred to the Announcements for 1920-21, for a detailed statement of the corresponding requirements in that institution.

As a final requirement before this degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree is conferred by the University upon men only.

EXPENSES

The charge for instruction is ten dollars a year for each hour per week. Each course will continue throughout the academic year, except as otherwise stated. Where laboratory fees are required they are additional. From two to three hours of laboratory work will be charged as one hour of recitation or lecture.

Students in all other divisions of the University, paying full tuition or on scholarship appointment, are permitted to register in any courses given in the College Courses for Teachers without payment of additional fees, except the regular laboratory fees.

Fees are payable in semi-annual instalments, in October and February, at the office of the Treasurer of the University, Room 121, Gilman Hall. Before payment of fees can be made, applicants must receive from the Registrar a card stating the courses to be taken.

The fee for matriculation as a candidate for the degree of Bachelor of Science is $5. The fee for graduation is $5, payable before the delivery of the diploma.

JUMBLE-INN SCHOLARSHIPS

The Jumble-Inn Scholarships were established in 1920 by the gift of a fund to the University from the Jumble-Inn Committee, Mrs. Sumner A. Parker, Mrs. Walter Wickes, Mrs. W. W. Keith, Mrs. James H. Preston, Mrs. Julian Ridgeley, Mrs. William McMillan, and Miss Sarah Fischer. The income of the fund only is to be used for the benefit of women teaching in the elementary public schools of Baltimore who are residents of the city, and who are pursuing instruction in the College Courses for Teachers as candidates for the degree of Bachelor of Science. Preference in every award is to be given to those in need of financial assistance in completing a college course. Application should be made to the President of the University.

SESSION

Instruction will begin Monday, October 4, 1920, and close on Saturday, May 28, 1921. Each course will include instruction for thirty-two weeks, except as otherwise noted. Classroom and laboratory exercises will be given in the afternoon and evening from Monday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual University recesses at Thanksgiving, Christmas, and Easter.

SCHEDULE OF HOURS

Classes will be held in the University buildings at Homewood and in certain public school buildings in the city. The complete schedule of hours can not be arranged prior to the opening of the courses on October 4. In addition to the usual afternoon and Saturday forenoon schedule, a number of classes will be held in the evenings at 8 o'clock, usually two hours in one session. Changes in the hours indicated may be made at the opening in order to meet the convenience of students. Where days and hours are omitted, the convenience of students will also be considered in arranging the schedule.

UNIVERSITY EXTENSION CENTERS

Under a regulation adopted by the Advisory Committee on the degree of Bachelor of Science in September, 1917, non-laboratory courses announced in the program, for which arrangements for instruction can be made, may be conducted at centers throughout the State of Maryland. The satisfactory completion of courses so conducted will be credited towards the degree of Bachelor of Science, and, also, will be accepted by the State Superintendent of Schools towards the renewal, or advancing the grade, of teachers' certificates.

The general conditions, under which classes will be organized at University Extension Centers, call for a minimum registration of twenty students, and provision by the local class of the place of meeting and the incidental expenses of the visiting instructor. Class exercises are to be held weekly during the regular session, from October to May. The conditions of admission and tuition expenses are described on pages 6 and 9.

Since the adoption of the regulation, courses in Education have been conducted for both secondary and elementary public school teachers at Salisbury, Frederick, Elkton, Rising Sun, and Havre de Grace. County Superintendents of Schools and others interested in the organization of classes at University Extension Centers should communicate with the Director of the College Courses for Teachers.

The Board of School Commissioners of Baltimore having extended the privilege of using certain of the public school buildings for classes in the College Courses for Teachers, the University will, within the limits of the schedule of the members of the Faculty, undertake the organization of classes to meet at convenient centers which may be available in parts of the city remote from Homewood.

COURSES OF INSTRUCTION

Any course for which there are fewer than twelve applicants may be withdrawn. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of, or other than, those mentioned below, an effort will be made to arrange for such instruction.

The exact amount of credit towards the baccalaureate degrees, which will be allowed for the successful completion of each of the following courses, can be determined definitely only at the end of the year.

ART

1. History of Art.

a. Ancient Art.

A general outline of ancient architecture, sculpture, and painting with some attention to the minor arts and to drawing as seen on vases. The development of the different branches of ancient art from prehistoric times will be systematically considered and their influence on later art emphasized. Lectures illustrated by slides, photographs, casts and original antiquities. Reports and required reading for credit. Books recommended: Reinach's Apollo (Scribner's Sons, New York, 1909, $1.50); Fowler-Wheeler, Greek Archaeology (New York, 1909, $2.00).

Professor Robinson. First half-year. Tuesday, 8-9.45 p. m.

b. Mediaeval and Modern Art.

History of the development of Mediaeval, Renaissance, and Modern Architecture, Sculpture and Painting. Lectures, recitations, reports on assigned topics. Text book: Reinach's Apollo.

Professor Robinson. Second half-year. Tuesday, 8-9.45 p. m.

The course on the History of Art must be offered as part of the requirement of the major in art.

2. The Art of the Far and the Near East—Oriental Art.

The course will include the art of Turkey, India, China, and Japan, with lectures on Mohammedan and Buddhist art, and on the history of oriental architecture, sculpture and painting.

Professor ROBINSON. First half-year. Thursday, 8-9.45 p.m.

3. History of Modern Painting.

The period studied extends from 1700 to the present.

Professor FROELICHER. First half-year. Tuesday, 8-9.45 p. m.

4. Roman Life, as illustrated by Latin Literature and the Monuments.

One hour weekly through the year. Professor ROBINSON.

5. An Introductory Course in Roman Archaeology and Art.

One hour weekly through the year. Professor ROBINSON.

6. Topography and Monuments of Greece and Asia Minor. Centers of Greek and Roman Life.

Professor ROBINSON. Wednesday, 4 p. m.

7. Greek and Roman Vases.

Professor ROBINSON. Tuesday, 4 p. m.

CHEMISTRY

1. General Inorganic Chemistry.

No previous knowledge of chemistry is required. The work covers the general principles and laws of chemistry and a study of the more important metallic and non-metallic elements. In the laboratory selected experiments, illustrating the preparation, properties and reactions of inorganic substances and the applications of chemical laws, are performed.

Professor GILPIN, Messrs. KING and SHARP. Lecture, 8-9.45 p. m.; and laboratory, 7.30-10 p. m., or Saturday, 9 a. m.-12 m.

2. Qualitative and Quantitative Analysis.

This course will include chiefly laboratory exercises, with two sessions each week. Occasionally a part or all of an evening will be devoted to a discussion of the theoretical principles of the reactions being studied. As the laboratory work is of an individual character, an effort will be made to meet the needs of each student in the kind of work assigned. Practice will be given in the methods of gravimetric and volumetric quantitative analysis.

Messrs. KING and SHARP. 7.30-10 p. m.

3. General Organic Chemistry.

A systematic course in the general principles of organic chemistry and the properties and reactions of the paraffin and benzene derivatives. It will consist of one lecture (two hours) and one laboratory period each week. The course will be so arranged as to meet the needs of those preparing for the Medical School, the School of Hygiene, or advanced work in Domestic Science.

Prerequisite: Chemistry 1.

Professor GILPIN, Messrs. KING and SHARP. Lecture, 8-9.45 p. m., and laboratory, at night, or Saturday, 9 a. m.-12 m.

Laboratory fee: $15.00 for each course, in addition to breakage.

DRAWING

The instruction in this course in freehand drawing aims to impart such knowledge of the principles of drawing as shall give students the ability to represent natural objects correctly.

This course may be offered as the first-year requirement of the major in art.

Mr. WHITEMAN. Six hours weekly. Monday, Tuesday, Wednesday, Thursday, 2-5 p. m.

EDUCATION

1. History of Education.

The course presents in outline the history of Education, tracing the development of those ideas, practices and institutions of the past which have been most effective in determining the essential features and problems of education in the present. The work is based on Monroe's "Textbook in the History of Education."

Professor BUCHNER. Monday and Wednesday, 5.10 p. m.

2. Principles of Education.

This course on the principles of Education undertakes a study of education with a view to understanding the work of the school and the mental and social factors in individual development.

Professor BUCHNER. Tuesday, 4.20-6 p. m.

3. Educational Psychology.

This course treats of mental development and the psychological basis of educational theory and practice, and includes the special psychology of interest, work, practice, childhood and adolescence, learning, and the various school subjects. A survey of the recent studies in educational psychology is made, and attention is given to the class-room values of mental measurements.

Professor BUCHNER. Monday and Wednesday, 4.10 p. m.

4. Principles of Teaching and Special Methods in Secondary School Subjects.

The first part of this course presents the principles underlying the method of instruction and class-room management, and includes such topics as habit formation, the laws of learning, and the nature of the thinking process.

During the second part of the course application of these principles is made to the problems of teaching the subjects in secondary courses of study.

Professor BUCHNER, Miss BAMBERGER, and Dr. WEGLEIN. Two hours a week.

5. Secondary School Organization and Class-Room Management.

This course deals with some of the principal topics related to the organization and administration of secondary schools, such as: The historical development and function of the American high school; comparisons with secondary schools in other countries; the main problems connected with the program of studies; the junior high school; extra-class-room activities; supervised study; methods of instruction.

Reports and discussion of observation of class-room and other secondary school activities.

Dr. WEGLEIN. Friday, 4.10 p. m.

6. Special Problems in Secondary Education.

A consideration of recent investigations in the field of secondary education.

Dr. Weglein. Tuesday and Friday, 5.10 p. m.

7. The Junior High School.

The reorganization of education, historical survey of the junior high school, articulation of junior high schools with elementary schools and with senior high schools, provision for individual differences, programs of study, problems of administration and supervision.

Dr. Weglein. Tuesday, 4.10 p. m. Western High School, Room 103.

8. The Teaching of English Composition in the Junior High School.

The course includes a consideration of the grammar program for the junior high school, the grammar of use, fundamentals, minimum essentials; of spelling; of oral expression, with suggestions for voice training; of written expression, with emphasis on the sentence in relation, and the letter; the use of the project, imitation, and dramatization as devices for vitalizing the composition course; the correction of written work; the conference; tests. Specimens of current work in the class-room are used as illustrative material.

Note.—This course will be given for the minimum registration of twenty.

Miss Simons. Friday, 3.45-5.30 p. m. Western High School, Room 101.

9. The Teaching of Mathematics in the Junior High School.

This course offers special consideration of the problems in teaching arithmetic, algebra, and geometry in the junior high school based upon courses of study, texts, and current reports. Attention is given to the diagnostic values of mathematical tests, from the teacher's point of view.

Note.—This course will be given for the minimum registration of twenty-five.

Dr. Rorer. Saturday, 10 a. m.-12 m.

10. Elementary Education.

This course includes the study of the principles and aims underlying elementary education. Among the topics to be discussed are: An examination of the social needs for subject-matter in each of the school subjects; the organization of the problems and materials of this subject-matter in response to the mental development of pupils; the classification of pupils and provision for individual differences; formulating of programs; proper methods of study; and measuring the results of teaching.

For those interested in problems of supervision, a third period may be arranged, in which additional topics will be considered. The work in supervision is an optional additional hour, and may be offered for extra credit.

Recitations will be observed with regard to method followed and the conduct of study periods will receive attention. Reports based on the observation of class-room work will be handed in from time to time.

Associate Professor BAMBERGER. Saturday, 9.15-11 a. m.

11. Elementary School Organization and Class-room Management.

This course treats of the principles of teaching with special reference to the conditions of organization and management under the control of the teacher. Such topics will be included as: Teacher's arrangement of material; organization of the school; flexible grouping of children; daily schedule; types of seat work; supervision of seat work; discussion of scales for measuring the achievement of pupils; program making; judgment of text books. Observations, discussions and reports will be required.

Associate Professor BAMBERGER. Saturday, 11.15 a. m.-1 p. m.

12. Experimental Education.

This course deals with educational measurements and tests and includes a comparative study of investigations in educational research. Attention is given to methods of attacking educational problems in the fields of standardized scales and surveys of pupil achievements in school subjects and of rating the intelligence of school children, with special reference to the application of results to the control of instruction and the organization of schools. Research will be undertaken in problems in either elementary or secondary education selected according to the chief interests of individual students.

Professor BUCHNER. Saturday, 11.15 a. m.-1 p. m.

ENGLISH

1. English Composition.

This course will include a review of the essentials of usage, the study of the principles of structure and style, and frequent practice in writing. Weekly themes will be required; these will be returned with written criticism.

Mr. LITZ. Tuesday and Thursday, 5.10 p. m.

2. American Literature.

(a) During the first half-year American narrative and lyric verse studied with particular reference to the significance of literary types.

(b) During the second half-year, a similar study of American prose, including the essay, the novel, and the short story.

Throughout the course literary history and biography will be dealt with incidentally. Opportunity for critical writing will be provided.

Associate Professor FRENCH. Tuesday and Thursday, 5.10 p. m.

3. The Appreciation of Poetry.

A study of the leading types of poetry, chiefly English, such as drama, lyric, epic, ballad, nineteenth century novels in verse, and other kinds of narrative poetry; seventeenth and eighteenth century philosophical and journalistic verse. A book of selections will be used, supplemented by outside reading.

Professor HOPKINS. Tuesday, 7.45-9.30 p. m.

4. Shakespeare.

A special study of the following plays: Othello, Henry V, Antony and Cleopatra, The Winter's Tale, and Troilus and Cressida.

Professor KUHL. Monday, 8-9.45 p. m.

5. Modern and Contemporary Drama.

A course in appreciation and criticism of the drama, and a study of its technique. The survey comprises representative plays from the founding of modern British drama, through the British School of Sincerity, and will include the New Movement in the drama. Continental dramatists are studied and compared, and the fundamental laws of technique underlying the development of all drama are shown. Typical plays of representative American dramatists, from Bronson Howard through Clyde Fitch, Moody, Mackaye, to Eugene O'Neil are to be analyzed. Some attention is given to the principles of stage-structure, scenic design, and lighting.

Other dramatists studied will be Pinero, Barrie, Shaw, Galsworthy, Granville Barker, Arnold Bennett, St. John Ervine, Dunsaney, and the Irish School. Plays of Continetal dramatists, Hauptmann, Rostand, Brieux, Maeterlinck, Giacosa, Chekov, and Schnitzler, will be read in English translation.

Mrs. Speare. Saturday, 10 a. m.-12 m.

6. Anglo-Saxon.

An introductory course, offered in the English Seminary, with lectures on the Germanic and Indogermanic relationship of the language.

Professor Bright. Friday, 3-5 p. m.

FRENCH

1. French Elements.

a. Grammar:—Fraser and Squair, *French Grammar.*

b. French Texts:—Monvert, *La belle France;* Labiche et Martin, *Le Voyage de Monsieur Perrichon;* About, *La Mère de la Marquise;* Augier et Sandeau, *Le Gendre de Monsieur Poirier;* Daudet, *Contes;* Molière, *L'Avare;* Sand, *La Mare au Diable;* Maupassant, *Contes Choisis;* France, *La Livre de mon Ami;* Mérimée, *Carmen and other Stories;* Bowen, *French Lyrics.*

This course is planned for students beginning the study of French and aims to impart a good reading knowledge of the language. It includes pronunciation, composition, and translation. Upon the successful completion of the course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in French. Medical students completing this course absolve the requirements in French of candidates for admission to the Medical School.

Mr. Merrill. Tuesday and Thursday, 4.30-6 p. m.

2. French Elements.

In case of sufficient demand, a night class similar to French I, or in advance thereof, will be organized.

Mr. Merrill. Monday and Wednesday, 8-9.30 p. m.

3. French Elements.

This course is planned for students beginning the study of French. It includes grammar, pronunciation, composition, and translation.

Dr. DULAC. Monday, 4.10-6 p. m. Western High School, Room 101.

4. Intermediate French.

This course provides for a continuation of grammar, pronunciation, composition, translation, and conversation based on reading and current expressions and idioms.

Dr. DULAC. Thursday, 4.10-6 p. m. Western High School, Room 101.

5. French Reading.

A course in French reading, grammar, and composition, for students who have had the equivalent of Course 1. The texts will be chosen from modern authors, and the exercises in composition will be of a practical nature.

Dr. GRUENBAUM. Tuesday, 4.10-5.50 p. m.

6. Practical French.

Practical exercises in spoken French. The nature of this course will depend upon the previous training of those who wish to follow it. It is intended, however, primarily for those who desire to increase their knowledge of practical modern French.

Dr. DULAC. Wednesday, 4.10-5.50 p. m.

The following graduate courses are open to those with adequate preparation, the hours to be arranged on Saturday or an afternoon:

7. The Realistic Novel.

Professor CHINARD. *One hour a week.*

8. *Explication de textes: les Parnassiens.*

Professor CHINARD. *One hour a week.*

9. Nineteenth Century Drama.

Professor LANCASTER. *One hour a week.*

GERMAN

1. German Elements.

This course is adapted to those who wish to begin the study of German or who have had a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation, and composition. Upon the successful completion of the work, the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in German. Medical students completing this course absolve the requirements in German of candidates for admission to the Medical School.

Associate Professor ROULSTON. Three hours a week.

2. (*A*) German Reading.

Modern prose readings with exercises in prose composition. Such writers as Storm, Sudermann, C. F. Meyer, Arnold, Schurz, etc., will be read. This course corresponds to collegiate German 1, and, if satisfactorily completed, will be credited accordingly. The two hours of literature and the one hour of composition may be taken jointly or separately.

Associate Professor ROULSTON. Three hours a week.

Or,

(*B*) German Literature.

1. Conrad Ferdinand Meyer.
October to February 15.

2. Gottfried Keller.
February 15 to the end of the year.

Associate Professor ROULSTON. Two hours a week.

HISTORY

1. *A*. Recent United States History.

This course covers the period from the Civil War to the present. It supplements by means of a more detailed study the survey course of United States history from 1783-1883. Especial emphasis is laid upon economic developments and their bearing upon domestic politics. The evolution of the foreign policy of the United States is traced in detail.

Or,

B. History of the United States, 1783-1883.

A survey of the political, social and economic history of the United States during the first century of national development. A syllabus will be provided and no single text-book will be used.

Professor GALLAGHER. Monday, 8-9.45 a. m.

2. Contemporary European History: Development of Slavonic Europe.

This course offers a study of Slavonic origins and early institutions, Slavonic migrations and settlement, and the general progress of each of the national Slavonic groups. During each historical period, the economic problems, and the social and intellectual accomplishments of each nation will be followed, as well as the political and constitutional developments. Special emphasis is laid upon the domestic and foreign policies of imperial Russia, and the causes of the revolutionary movements of 1905 to 1917.

The course is conducted by lectures, reference reading, and class reports.

Professor GALLAGHER. Thursday, 4.10-6 p. m. Western High School, Room 103.

ITALIAN

The object of this course for beginners will be to acquire a reading knowledge of modern Italian and correct pronunciation. Prose composition will begin as soon as the most elementary part of the grammar has been mastered. The following text-books will be used: Phelps, *Italian Grammar;* Wilkins and Altrocchi, *Italian Short Stories;* Collodi, *Le Avventure di Pinocchio.*

Dr. GRUENBAUM. Thursday, 4.10-5.50 p. m.

JOURNALISM

The Principles and Practice of Journalism.

This course of lectures on journalism and practical exercises in newspaper work includes discussions of the journalistic styles, news stories, the reporter and his work, the departments of a modern newspaper, and the technical processes of publication.

The course is given in co-operation with *The Sun*, Baltimore. Students are offered an opportunity to study the making of a newspaper in practice, to use the plant of *The Sun* as a laboratory for such study, and to write under the direction and criticism of a member of its editorial staff.

Mr. PORTER. Wednesday, 8-9.45 p. m.

LATIN

1. Classical Literature.

A series of lectures on great representative authors of classical literature from Homer to the Second Century A. D. Special attention will be given to certain aspects of formal and artistic development and to the growth and influence of literary tradition.

The course will require the reading in translation of the authors studied. A previous knowledge of Greek and Latin is desirable, but not essential.

Professor MUSTARD. Two hours a week, 5 p. m.

2. Vergil and Horace.

The Seminary in Vergil and Horace is open to teachers and others with adequate preparation.

Professor FRANK. Thursday, 4-6 p. m.

MATHEMATICS

Trigonometry and Analytic Geometry.

Prerequisites: Plane Geometry and Algebra.

Professor HULBURT. Two periods a week.

ORIENTAL SEMINARY

The following courses in oriental history, literature, and archaeology, offered in the Oriental Seminary, presuppose no knowledge of the Hebrew or Greek languages:

1. Interpretation of Selected Chapters of the Authorized Version.

Professor HAUPT. Wednesday, 5 p. m.

2. The Literature of the Old Testament (with special reference to date and authorship).

Dr. DOUGHERTY. Wednesday, 4 p. m.

3. History of the Ancient East (Egypt, Babylonia, Assyria, Persia, Israel and Judah, preceded by a sketch of the Prehistoric Period).

Dr. BLAKE. Friday, 5 p. m.

4. Historical Geography of Palestine.

Dr. Albright. Monday, 5 p. m.

5. Biblical Archaeology (Egypt, Babylonia, Palestine).

Dr. Albright. Tuesday, 5 p. m.

6. The Religions of Western Asia.

Dr. Albright. Thursday, 5 p. m.

PHILOSOPHY

1. Social Ethics.

After a preliminary survey of the beginnings and growth of morality, study will be made of the principles of social ethics in application to the whole system of organized social relations,—the state, economic order, and the family.

Dr. Slonimsky. Monday, 8-9.45 p. m.

2. Contemporary Philosophy.

A discrimination and criticism of some of the major motives of present-day philosophy and their appearance in popular thought and in literature and art. The doctrines of several philosophers may be examined in more detail: James, Royce, Bradley, Santayana, Russell, and Bergson.

Mr. Hammond. Thursday, 8-9.45 p. m.

POLITICAL SCIENCE

The Government of Modern States.

This course will deal with the principles of free government, the problems which have arisen in connection with the application of these principles, and the manner in which these problems have been met by the United States, Great Britain, and the leading European countries.

Mr. Thach. Wednesday and Friday, 4.10 p. m.

PSYCHOLOGY

1. Introduction to Scientific Psychology.

A study of the human mind in relation to the activities of the organism. Special attention will be given to the neural basis of consciousness, the development of perception, habit-formation, instinct, emotion, and will.

Associate Professor JOHNSON. Thursday, 4.10-5.50 p. m.

2. Social Psychology.

The course undertakes a survey of the psychological factors involved in social relations. Such topics are considered as the primary instincts and emotions, imitation and suggestion, efficiency and its evaluation, the family group, and the social function of religion.

The course will be given only for a minimum registration of fifteen.

Professor DUNLAP. Tuesday, 8-9.45 p. m.

3. Problems in Social Psychology.

Reports and discussions of selected topics chosen by the members of the class. The course is open only to students who have satisfactorily completed Psychology 2.

Professor DUNLAP. Hours to be arranged.

Students who satisfy the instructor as to their preparation may be enrolled in the course in the Psychology of Childhood announced in the list of graduate courses. See Register for 1919-1920.

RUSSIAN

1. Russian Language.

This course will include instruction in elementary grammar, colloquial and written Russian. Practical exercises will be based on standard prose works.

Mr. BREIT. Friday, 8-9.45 p. m.

2. Russian Civilization and Literature.

a. The first half-year is devoted to a study of the historical development of Russian culture in its educational, economic, ethical and intellectual aspects from the beginning of Russia as a national entity to the present time.

b. The second half-year offers a survey of Russian literature in its historical development from the period of the oral ballads and lyrics to present-day writers, special attention being given to the classical writers.

This course does not require a knowledge of the Russian language.

Mr. BREIT. Wednesday, 4.10-5.50 p. m.

SPANISH

1. Spanish Elements.

a. Fuentes and François, *A Practical Spanish Grammar;* oral and written exercises.

b. Hills, *Spanish Tales for Beginners;* Alarcón, *El Capitán Veneno;* Palacio Valdés, *La Hermana San Sulpicio.*

A course intended for beginners. Upon successful completion of this course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in Spanish.

Mr. CABELLO. Wednesday and Friday, 4.10 p. m.

2. Practical Spanish.

A practical course in Spanish for those who have had the elements of the language, and who desire to gain a broader knowledge of the literature, together with facility in speaking and writing Spanish.

Mr. CABELLO. Wednesday and Friday, 5.10 p. m.

3. Spanish Literature.

Explanation of the texts of short stories by modern Spanish authors. Pedro de Répide, *La voz de la conseja* (three volumes).

Mr. CABELLO. Monday, 4.10-5.50 p. m.

Attendants on the College Courses for Teachers, 1919-1920, 633.

PROCEEDINGS

OF THE

UNIVERSITY PHILOLOGICAL ASSOCIATION

1919-1920

Edited by David M. Robinson, *Secretary*

The University Philological Association meets on the third Friday of every month at 11.30 a. m. At the meeting on May 19, 1916, it was voted that abstracts of the minor communications and of the principal papers should be printed in the *Johns Hopkins University Circular,* as was the custom in the early days of the Association.

In accordance with this resolution the Secretary has secured abstracts so far as he could from the readers themselves, and with their help has prepared the material for publication in the *Circular,* as has been done the last four years.

Three hundred and thirty-fourth meeting

October 17, 1919

President Collitz made some introductory remarks on the history and purpose of the Association and on the value of the study of Latin and Greek, referring especially to Professor FitzHugh's recent pamphlet on the *Letters of Thomas Jefferson and the Classics.* Professor Haupt then presented a minor communication on *The Partitions of the Babylonian Ark.*

The ship of the Babylonian Noah had six floors (*rukbêti* = *ruqpêti*) or decks between the roof and the bottom, and nine transverse partitions, so that there were seventy compartments; see my explanation of ll. 57-80 of the Flood tablet in *Actes du Seizième Congrès International des Orientalistes,* Athens, 1912, p. 72. The Assyrian equivalent of the Sumerian ideogram for compartments (Heb. *qinnîm,* Gen. 6, 14) is unknown, but the characters *gi-sa-ma-du-meš* mean *reed* + *network* + *ship* + *structure* + *plural.* The partitions consisted of a network of reeds. If these wattled hurdles were coated with asphalt (*cf.* Gen. 6, 14; 11, 3; Exod. 2, 3) they constituted water-tight bulkheads, so that some of the compartments could be used for storage of water, oil, &c. This construction corresponded, in some respects, to our modern concrete ships. The Babylonian Noah says that he poured six *sars* (about 1,680,000 gallons) of asphalt into the pitch-pot (Syr. *kârâ, kâryâ;* JAOS 37, 322, n. 11).[1]

Round basket-boats coated with asphalt are still used on the Euphrates and Tigris (MLN 33, 434; *cf.* fig. 131 in Bonomi's *Nineveh and its Palaces* and pp. 615. 707. 745 of Maspero's *Dawn of Civilization*). The Babylonians had also basket-pots (Syr. *kâfártâ* = Assyr. *karpatu*) i. e. vessels of basket-work made water-tight with asphalt (MLN 33, 433). In c. 7 of his *Popular Account of Discoveries at Nineveh* Layard gives a picture of a wicker bridge across the Zâb near Lizân (NE of Môsul): stakes are firmly fastened together with twigs forming a long hurdle reaching from one side of the river to the other. The huts of the native laborers employed during the German excavations at the ancient capital of Assyria, *Kal'at Shergât* (S of Môsul) consisted of mats of rushes; the modern Babylonian *çarîfah* is an arched structure of reeds and reed-mats fenced in with reeds (JAOS 32, 7). On p. 92 of his *Travels and Researches in Chaldea and Susiana* (1857) Loftus describes the reed-palace of an Affej chief in South Babylonia; this building was forty feet long and eighteen feet high; it was said to be half a century old. The medieval Irish houses were built chiefly of wattles and wicker-work,[2] just as the walls of the prehistoric Swiss lake-dwellings were formed of clay-daubed wattle-work (EB^{11} 14,768; 16, 92; 7, 378).

In the cuneiform account of the Flood a reed-hut is called *qiqqišu*, a reduplicated form of Heb. *qaš*, straw. French *chaume* (= Lat. *calamus, culmus;* Eng. *halm, haulm*) denotes not only *straw*, but also a *straw-cabin* (French *chaumière, chaumine*). *Cabin* is derived from Lat. *cabanna*, hut of watchmen in a vineyard, which is a transposition of *canaba*, booth, especially the booth of a sutler following the Roman legions. French *cabanage* denotes a *camp of Indians.* Another variation of *canaba* (*cannaba, canava, canapa, kanaba*)[3] is *caupona*, tavern, which appears in Greek as *καπηλεῖον*, and in German as *Kneipe*. *Cabaret* stands for *cabanet*, just as καπηλεῖον is a modification of *καπανεῖον, καβανεῖον. Also Ger. *Kaufmann* (Eng. *chapman*) is connected with Lat. *caupo*, Greek κάπηλος, Heb. *ḥâněwânî*. All these words are ultimately derived from Heb. *ḥanût*, shop, originally *vault* (JAOS 28, 110; *cf.* also 37, 316 and BL 132).

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[1] For the abbreviations see *Journal of Biblical Literature*, vol. 38, p. 142.—MLN = *Modern Language Notes.*

[2] *Cf.* Greek *γέρρον*, French *ramée*, Lat. *trichila, tricla*, trellis, bower, arbor, summer-house.

[3] *Cf.* Ital. *capanna*, Span. *cabaña.*

Ger. *Hütte* (syn. *Schanze*, *Kampanje*) denotes the *cabin* in the stern of a ship. The officers living there were therefore called *Hüttengäste*. The primary connotation of *hut* is *basket*. French *hutte* (= Ger. *Hütte*) is a *hut*, and *hotte* (= Ger. *Hotte*, Swiss *Hutte*) denotes a *basket* or *panier*. Ger. *Kajüte*, cabin of a ship, is the French *cahute*, hovel. *Kabine* (French *cabine*, *cabane*) is used in German for *stateroom*, also for what is called in English seaside-resorts a *bathing-machine*, i. e. a wheeled bath-house that may be drawn out into the water. Other German terms for *stateroom* are *Kammer* (= κάμαρα, vault)[4] and *Koje*, a byform of *Kaue* (= Lat. *cavea*, cage; cf. *cavus*, hollow) which denotes a *hut* of a woodman or mountaineer. *Kojen* is used also for *bunks* or sleeping-berths in ships.

The Assyrian equivalent of the Sumerian ideogram for *wattled partitions* may have been *massaku*, chamber, from *sakâku*, to interweave (JBL 37, 228, l. 4).[5] From the same stem we have in Hebrew: *sukkâ*, hut,[6] and *môsák* (not *mûsak*) = *massak*, compartment, stall, box; see *Kings* (SBOT) 259, 27. In Assyrian, *sukku* denotes the revetment of the bank of a canal, because mats or fascines were used for this purpose. Also for Heb. *māsāk*, cover (GB^{16} 440) we must read *môsák*, mat, textile fabric. In Prov. 23, 2 *śakkîn* is miswritten for *sakkôn*, muzzle, *i. e.* a *basket of rope-network* around the jaws (JBL 33, 290). We must render there, not *Put a knife to thy throat* (Graec. Venet. καὶ θήσεις μαχαίριον ἐν ἑστιάσει σου) but *Put a muzzle on thy jaw* (Heb. *lô‘*; Assyr. *laxû*; cf. Arab. *nî‘*). *Maśkîyôth lebáb* (Ps. 73, 4) means *webs of the wit*. The original signification of Ethiop. *maskôt*, window (which is not identical with Arab. *miškât*, niche for the reception of a lamp) is *lattice*, and the primary connotation of Syr. *sákkî*, to look for, is *to look through the lattices* (Eccl. 12, 3).

The last three lines of the description of the construction of the Babylonian Ark mean: The gangways were steep; when the compartments were filled (Arab. *ḥábila*) above and below, she drew 140 feet of water.

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[4] *Cf.* Span. *camara*, *camarote*; Ital. *camerino*.

[5] *Cf.* GB^{16} sub *maggál*, sickle, and *maššáq*, running.

[6] The Feast of Tabernacles (Heb. *ḥag has-sukkôt*) is called in Spanish: *fiesta de las cabañas.*

Professor Collitz then read the principal paper on *The Causes of Phonetic Change.*

Language serving as a system of tools, as it were, for the utterance of sentiments and thoughts, there will naturally be a tendency to improve these tools by making alterations whenever they do not seem to answer the purpose of unmistakable and adequate expression. It is from this utilitarian point of view that the bulk of changes in languages—as far at least as words and forms are concerned—must be and may be understood, notwithstanding the fact that grammarians and lexicographers are generally inclined to give the preference to the unchanged forms, so as to brand subsequent alterations as the result of misunderstanding or confusion. This holds true, e. g., with regard to all instances of so-called "popular etymology." Words like Engl. *sparrowgrass*, *female*, or Ger. *Armbrust*, no doubt, were intended as improvements on the earlier forms *asparagus*, *femell* (= Lat. *femella*), *arbrost* (= French *arbaleste*), altho they are referred to in the dictionaries as corruptions. There is no reason why we should not accept them as legitimate instances of linguistic transformation.

The theory we advocate must not be interpreted as meaning that the members of a speaking community are fully aware of the part they are playing in the development of the language. We may take it for granted that the individual is always satisfied with choosing what appears to him as the proper form of expression. The fact, however, that he is left to make his own choice implies that he cannot help taking a share in shaping the tool he is using for the purpose of communicating with his fellow-beings. He will, of course, decide in favor of that form which appears to him preferable, and his decision, though not necessarily the result of deliberate reflection, will not generally be made without a proper knowledge of the pertinent facts. The individual, e. g., addressing his friend as *Tom*, is without doubt aware of the fact that his friend's Christian name is *Thomas;* yet the flavor, as it were, of the two forms being different, he has good reasons for preferring the shorter form. Or, to quote another example, the individual using the short forms *Frisco* or *Balmore*[1] may be supposed to be acquainted with the "correct" geographical names, but prefers a dissyllabic to the polysyllabic form.

Will it be possible to apply the same principle to the so-called phonetic change or sound-change? The answer to this question will largely depend on our attitude toward the much debated problem of the nature of the so-called phonetic laws. Some fifty years ago it seemed possible to regard phonetic change generally as the result of an "economy of effort," i. e., of "the tendency to make the work of utterance easier to the speaker" (Whitney, *Language and the Study of Language*, N. Y., 1867, p. 69). This theory was contested, with plausible reasons, by E. Sievers, *Grundzüge der Phonetik* (Lpz., 1876), p. 126 (= 5. Aufl., 1901, p. 268). The classification of phonetic changes, however, suggested by Sievers as a substitute for the opinion he rejects, serves less to explain the underlying causes than the outward forms of phonetic change.

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[1] Though seldom found in print, *Balmore* is, as every Baltimorean knows, the favorite popular form for *Baltimore.*

Nor can it be said that an agreement as to the causes of phonetic change has been reached otherwise. In fact, we can hardly expect to arrive at a satisfactory explanation of these causes as long as the current theory of the nature of phonetic laws is adhered to. This theory has remained largely the same as suggested by Brugmann and Osthoff in the preface of their *Morphologische Untersuchungen*, vol. I (Leipzig, 1878), to the effect that phonetic laws should be looked at, as regards their scope, as dialect-laws, and as regards their nature, as mechanical laws. A mechanical element, no doubt, enters largely into the make-up of every phonetic law, because these laws are so intimately connected with the mechanism of the organs of speech that a phonetic change necessarily implies a change in the working of this mechanism. We must be careful, however, not to confound a change in mechanism with a change of a purely mechanical nature or with a change made for mechanical reasons. The working of the mechanism of speech rests after all on human will-power and is, moreover, as a means of mutual communication, subject to the control of a social community. While the so-called phonetic laws, then, appear as mechanical laws at the surface, their origin must be sought rather in the mental disposition of the speaker and in his association with other individuals.

Due allowance is made for psychical and social factors in the elaborate effort to ascertain the causes of phonetic change made by Professor Oertel in his *Lectures on the Study of Language* (N. Y., 1902), pp. 189-273. Yet little probably is gained by Oertel's distinction between ultimate and immediate causes and by his attempt to separate the latter into causes of a mechanical or psychical or social, etc., nature, so as to assign every phonetic change to but one of these categories. As a matter of fact, every phonetic law means a complication of physical, psychical, and social processes. While within certain limits an attempt to analyze the various factors participating in the phenomena of phonetic change may prove instructive, yet our main task obviously should be to explain their concerted action toward a common goal. It is, in other words, a synthetical rather than an analytical procedure that promises to be successful.

My own attitude toward the problem in question has been briefly stated in a review of the first volume of *Morpholog. Untersuch.* in the *Anzeiger f. dt. Alt.*, vol. v (1879), p. 320 ff. In opposing the explanation of phonetic change on a strictly mechanical basis I advanced the theory that phonetic laws are primarily the result of articulatory fashions, and that the general adoption of such fashions by a social community involves a more or less conscious choice between a former and a new fashion of pronunciation. A few years later this theory found an advocate in the late professor Friedrich Müller of Vienna—in an article "Sind die Lautgesetze Naturgesetze?" (Techmer's *Zeitschr. f. allgem. Sprachw.*, vol. I, 1884, pp. 318-321)—who, however, was not apparently aware of the fact that in assigning phonetic laws to the sphere of fashions he had any predecessor.

A more detailed exposition of this theory and of its relation to the general principle governing changes in language must be reserved for a later occasion.

Three hundred and thirty-fifth meeting
November 21, 1919

Professor Bright presented a minor communication on *The Individuality of Speech.*

No two individual members of the same family, or of the same community—and it follows, of the same state or nation—speak their common language in identically the same manner. Since Paul's *Principien* this truth has been made especially prominent in linguistic philosophy. This diversity in individual speech relates to inevitable peculiarities by which one person is distinguished from another. But whatever falls under this head of personal peculiarities in speech does not invalidate the conception of a theoretic norm, a standard-form of the language spoken. All that is peculiar to the speech of any one taken separately may be summed up as being his own set of linguistic reactions to environment and education. These reactions reflect the character of his mind and temperament. Tho obviously true that a man maintains an individuality in speech just as he maintains an individuality in appearance and in character, it is the purpose in this brief communication to fix attention on the linguistic fact, so well recognized in the science of language, that no one speaks exactly as another, and on the concomitant fact that, in strictness, no one speaks as he pleases. These truths are verifiable in one's own experience and, under the severest tests of a homogeneous, cultivated community.

Cyrano de Bergerac has reported that the people of the Moon do not possess articulate language; that they communicate with each other by means of other devices. The simpler classes employ movements of the hands, fingers, arms, eyes, lips, and of the feet; but the higher classes have an inarticulate language of the voice and, interchangeable with this, a conventionalized use of sounds and phrases of sound produced on musical instruments. With the use of musical instruments a discussion of an important topic may be carried on by a dozen or more people, and the effect is described as being 'the most harmonious consent of music,' a symphony of agreeable sounds. But even on the Moon it must be true that no one can play better than in his own way, however much he may please to do so; better, that is to say, than is made possible by his own attainments in the use of the instrument. Here is an analogy that makes manifest the relation of the practical to the artistic use of language. The equation holds that the reported practical use of music is related to music as a fine art just as the practical art of speech is related to the fine art of literature. The possible approximation of the practical to the artistic use of language will vary—this is the teaching of the analogy—with every individual in a community, the variation, in each instance, reflecting the peculiar conditions in which the 'mother tongue' has been acquired, and the manner in which it has been cultivated at school and in the freer years of self-discipline.

There are, then, three chapters in the history of the acquisition and use of one's vernacular tongue. The subject of the first chapter is the dependent imitation of childhood and the iterated admonitions of the family, to which is added the initial and elementary training of the school; the second chapter reports the school teaching grammar and rhetoric and inculcating a sense for conscious advancement in the art of speech and writing; and the final chapter discloses the attitude of the mature man to his language.

It is not using a figurative statement to declare that to speak is to employ a practical art. The designation is true, and by direct implication it puts the right stress on the process of acquiring and cultivating one's mother tongue, and on that personal variation which is inevitable in the practice of any art whatsoever.

Obviously enough, thus far the argument by analogy does not completely exhibit the nature of the practical art of speech, for this art differs from all other arts because of its function in the development of the mind and in the determination of personality. The argument by analogy may, however, be continued by turning from the arts to the study of the human will.

The moralist contents himself—and his purpose justifies him in doing so—with the practical tenet that every man is wholly responsible in the exercise of his will. Epictetus may be named to represent this empirical view that the only thing a man can truly call his own is his will. On the other hand, M. de Bon argues biologically and psychologically that the character of the individual will is the result of the operation of the law of habitual responses, from childhood onward, to the impacts of experience, and consequently becomes established as the inevitable rule of conduct; in other words, that the will is the least voluntary of the agencies in the life of the individual man. To borrow an expression used in another connection by Mr. Wilson Follet (*Harper's Magazine*, Oct., 1919, p. 700), "One can do only what one is."

Now, the acquisition of the mother tongue is a process that is psychologically similar to the concurrently gradual fixation of habit in responses to the impacts of experience—the habit called the will. And both results agree in begetting the common conviction that one possesses something that is as undeniably only one's own as is the possession of a physical feature. The conviction is unassailable, and the quoted expression may be reapplied in the form 'one can speak only in one's own manner,' with the addition that in personal appearance one can be only what one is.

The ethical view of the empirical freedom of the will does not contradict the genetic theory. It merely accepts the will of adolescent and of maturer years and insists on the conscious cultivation of it. So, too, personal appearance may within limits be, let us say, tutored; and there is surely a wide margin for the cultivation of one's so-called 'inherited speech.'

The outline has thus been sketched of the argument that speech is a practical art; and that this art differs from all other arts by being acquired not only as an art, but also as a condition of the life of the mind, somewhat as the will is acquired as a condition of personal character. It follows that the characteristics of the individual mind and disposition or temperament constitute an organic tie between personal character (in the broadest ethical sense) and personal manner of speech.

The manner of using one's native tongue is therefore an acquisition that is so intimately interwoven with all that makes for personality as to be not only inseparable from it, but also governed by it. But on the most external side of this peculiar art, there is a margin for individual independence or caprice in manner—a margin that is easily misunderstood to be wider than it is. Empirically tested, no isolated caprice, or innovation, or affectation has more than a negligible effect on the speech of an individual, who must speak essentially his own language. This may undergo changes due to lapsing into careless or bad habits; or by submission to the influences of farther cultivation which proceeds by stages from the correction and refinement of colloquial use, into the higher style of formal discourse, and finally into the fine art of literature. But whether the quality of his language-art rises or falls, according to environment and other influences, it still as truly as before represents himself and holds him under the law of his personality. It is his complete self that speaks at any one time, tho that self may have passed thru periods and processes of change in respect of his habitual manner of using his language. This is true in the matter of styles in writing, and it is true in the practice of all other arts.

This communication was discussed by Professors Collitz and Bloomfield, and then Professor Morris Jastrow, of the University of Pennsylvania, spoke on *Sumerian Law Codes* and on the *Hittite Problem.* After some remarks by Professor Blondheim, Professor Tenney Frank read the principal paper on *Vergil's Apprenticeship.*

This study undertakes to bring new evidence on the problems of the Appendix Vergiliana by attempting to reconstruct the historical background. In the ninth Catalepton, l. 40 seems to imply that Messala was at the time of writing closely connected with the liberators, Brutus and Cassius, while l. 3 assumes that he was about to return as a distinguished member of their triumphal party. The poem was, therefore, written when the author had heard of the first battle at Philippi but before the second, i. e., about August 42 B. C. A comparison of l. 17 with Vergil, *Ecl.* II indicates that Vergil wrote Catalepton IX. Catalepton III can best be explained as a reference to Pompey made by Vergil when a soldier in Cæsar's army. Catalepton XIV was probably written about 44 B. C. when Vergil first attempted an epic of Rome, cf. *Ecl.* VI, 3; *Catal.* XI, 62; and the *Vita* of Donatus "res Romanas."

The Culex belongs to the autumn of 48 B. C. *Sancte puer*, l. 26, refers to the priesthood bestowed upon Octavius at that time; and if in the reference given by Donatus we alter XVI to XXI we arrive at the year 48. The poem was meant as a Lehrgedicht to a boy at school; its purpose was to weave numerous mythological references into the fabric of a fable. Horace *Epode II*, written about 40 B. C. is a compliment to Vergil for his Culex, while Vergil at the end of *Georgics II* repays the compliment, thereby acknowledging the Culex as his own.

The Ciris is also Vergil's. Catal. IX, 61, refers to it, the use of *communem Deum* for Mars in both poems (both suppressed for the time being) proves that both came from the same author, and the personal references in the dedication of the Ciris fit the period 44-3 B. C. There seems now to be no reason for refusing to acknowledge Vergil as the author of the Culex, the Ciris, and the Catalepton.

(This paper has been published in *Classical Philology*, XV, 1920, pp. 23 f., 103 f.)

Three hundred and thirty-sixth meeting
December 19, 1919

Professor Bloomfield read a short paper on *The Hindu Practice of Giving Animals Strong Drink.*

The Saint Svāgata is delegated by the Buddha to convert the murderous Nāga (serpent), Açvatīrthaka. His success in this task has secured for him the admiration of the Brahman Ahituṇḍaka who has previously fled from that Nāga to the city of Çrāvastī. This brings the Svāgata story, Divyāvadāna xiii, to p. 188, l. 12. At that point the king of Çrāvastī, named Prasenajit Kāuçala, takes Ahituṇḍaka in his employ: sa rājñā . . . hastimadhyasya viçvāsikaḥ sthāpitaḥ. Emend the senseless °madhyasya to °madyasya, 'intoxicating liquor,' to wit: 'He (namely, Ahituṇḍaka) was placed in charge of the elephants' liquor.' In the sequel Ahituṇḍaka, now liquor trustee, in order to show appreciation of Svāgata's saintly power, invites him to a good meal, at the end of which he becomes solicitous about the Saint's digestion. He decides to give him water to promote the digestive processes: tena (sc. Ahituṇḍakena) pānakaṁ sajjīkṛtya hastimadād aṅguliḥ prākṣiptā (emend, prāk kṣiptā), 'while preparing the drink Ahituṇḍaka's finger was thrust forth from the elephant's liquor.' This very weak high-ball makes Svāgata drunk; he falls upon the ground, but the Buddha himself conjures by magic a hut of leaves over Svāgata, to hide his shame. The story is an extreme plea for total abstinence on the part of monks.

In Cullahaṁsa Jātaka (533) Devadatta, a hater of the Buddha, tries to kill him by an elephant. He asks the keeper of the king's elephant Nālāgiri how much rum the elephant is wont to drink on ordinary days, and when he answers, 'Eight pots,' he says, 'To-morrow give him sixteen pots to drink, and send him on the street frequented by the ascetic Gotama.' But the Buddha converts, yea, the rum-mad elephant.

Mettlesome horses also were given strong drink, either to inspirit them, or to restore them after fatigue. In Vālodaka Jātaka (183) horses returning from battle are given fermented grape-juice which they take without getting drunk. But the leavings are strained with water and given to donkeys who thereupon gallop about the palace yard, braying loudly:

'This sorry draught, the goodness all strained out,
Drives all those asses in a drunken rout:
The thoroughbreds, that drank the potent juice,
Stand silent, nor skip capering about.'

Animals also intoxicated themselves without knowing: cats, with fermented liquor, in Kumbha Jātaka (512); a jackal, in Sīgāla Jātaka (113); a pair of crows, in Kāka Jātaka (146). A delicious bit of satire, known to the modern world in some form or other, tells, in Gūthapāṇa Jātaka (227), how a dung beetle gets drunk on rum drippings, and climbs upon its native lump. The dung, being moist, gives way a little. "The world cannot bear my weight!' he exclaims, and challenges an elephant. The elephant, in disgust drops a great piece of dung, killing him, then scampers into the forest, trumpeting.

A brief paper was read by Professor Lancaster with regard to two letters written by Jean Racine to his sister, formerly belonging to Alfred Morrison and published only in a bookseller's catalogue. He gave the text of the two letters. By comparing them with another letter, already published, and by reference to the date of Ash Wednesday in the years 1678-1686, he was able to determine that the letters were written in 1685 and that they are concerned with Racine's efforts to reëstablish his brother-in-law in the salt office at La Ferté Milon. The article has appeared in *Modern Language Notes*.

Three hundred and thirty-seventh meeting
January 16, 1920

Professor Haupt presented a minor communication on *The Golden Psalms.*

Several Psalms (16 and 56-60) have the title *Michtam of David.* AV[1] gives in the margin: *A golden Psalm of David*,[2] but this rendering is impossible. Also at the beginning of the Psalm of Thanksgiving (attributed to King Hezekiah of Judah) in Is. 38, 9 we must read *miktam* instead of *miktab*, writing; so there were seven poems designated as *miktam.* The famous seven pre-Islamic poems of the ancient Arabs, known as the *Mo'allaqât*, were called also *mud̮ahhabât*, the golden ones. They were supposed to have been written in gold on pieces of Coptic linen and hung up in the Ka'ba at Mecca (EB^{11} 18, 632; *cf.* BL 67). The Avesta of Zoroaster is said to have been written on cowhides with golden ink (EB^{11} 28, 968^{b}).

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[1] For the abbreviations see *Journal of Biblical Literature*, vol. 38, p. 142.

[2] There are no Psalms of David; see these *Circulars*, No. 163, p. 54, and No. 316, p. 9.

The LXX regards *miktam* as equivalent to *miktab*, writing; it renders: *στηλογραφία*, for which the Vulgate has *tituli inscriptio.* This is better than St. Jerome's *humilis et simplex* or *perfectus*, dividing *miktam* into two words (*mâk* from *mûk*, a byform of *makak*, and *tam*). We find the same interpretation in the Talmud (*Sôṭâ* 10^{b}). In modern Hebrew, *miktam* is used for *epigram*, which denoted originally a poetical inscription placed upon a statue, monument, tomb, building, &c. The term was afterwards extended to any little piece of verse expressing a delicate or ingenious thought; in French it is used even for delicate meat served as an entrée, *e. g.* a small fillet of game, poultry, or lamb (CD 1969). The editor of Melanchthon's epigrams included in his collection some translations from the Psalms. In Delitzsch's Hebrew translation of the NT, *miktab* is used for *ἐπιγραφή* and *τίτλος*, the *superscription* or *title* on the cross, *This is the King of the Jews* or *Jesus of Nazareth, the king of the Jews.* The same word may, of course, denote an inscription and a poem. Our *posy*, which is a contraction of *poesy*, denotes a short inscription or an epigram. A *posy-ring* is a ring inscribed with a short poetical motto which was also called *chanson.* Sometimes *epigraph* is used in the sense of *motto.* We call the inscriptions on monuments, or the words and letters stamped on coins, *legends*, and *legend* signifies also a poetical (non-historical) narrative. In the name of the *Académie des Inscriptions et Belles-lettres* the term *inscriptions* means *legends on medals;* the Academy was originally charged with the office of furnishing inscriptions, devices, and legends for medals (EB^{11} 1, 103^{a}).

Heb. *miktam*, however, does not mean *inscription*, but something *covered.* Grotius uses *tecta locutio* as the Latin equivalent of *ἀλληγορία*, Cicero employs the phrase *verba tecta*, and for *to make veiled allusions* you say in French: *dire quelque chose à mots couverts* (i. e. *d'une manière détournée*). Heb. *miktam* does not mean *στηλογραφία*, but *εἰκονολογία*, *lingua figuris abundans*, tropology, imagery, figurative speech, imagerial poem. The seven Hebrew poems designated as *miktam* contain several *tectae locutiones.* In Ps. 16 (*cf.* the translation in JAOS 32, 124) we find e. g. *the lines* *are fallen unto me in pleasant places,* i. e. I am happy, but the original meaning of the phrase is: The lot, or portion of land, which has been divided off for me by the measuring line, is situated in a pleasant place (*Pur.* 18). In the same Maccabean poem we read: *even at night my reins exhorted me* (= Thou are never out of my thoughts) and *Thou wilt not suffer Thy faithful ones to see the Pit* (= Judaism is immortal). The hemistich *My tears are placed in Thy bottle* (= Thou doest not forget my misery) in Ps. 56, 9 may be illustrated by the jar filled with tears, carried by the children, at the end of the fourth act of Gerhart Hauptmann's *Die versunkene Glocke* and the *Volksmärchen* in Grimm's *Mythologie* (p. 884) quoted in T. S. Baker's edition of Hauptmann's dramatic fairy-tale (New York, 1900) p. 195.[1] On p. 188 Dr. Baker says of Heinrich's wife, Magda: Her sufferings and sorrows are described symbolically by reference to the jar filled with tears (*cf.* also Duhm *ad* Ps. 56, 9). In Ps. 60, 5. 10 we read *Thou didst make us drink staggering wine* (cf. our *bitter pill, dose,* &c.) and *Moab is my wash-bowl* = We shall bathe our feet in the streams of Moab, or we shall invade the well-watered valleys of Moab (FV 281). The washing of the feet was necessary, because they were protected only by sandals (EB 5273. 4492). The line in Is. 38, 12, *Thou hast wound up, like a weaver, my life, cutting me off from the thrum,* reminds us of the Northern Norns, who weave the destinies of men, and the Greek Atropos, the eldest of the three Fates, who severs the thread of life that has been placed on the spindle by Clotho, and drawn off by Lachesis.

The legend on Jean Houdon's bust of Benjamin Franklin, *Eripuit coelo fulmen, mox sceptra tyrannis,* may be called *miktam;* it is figurative and epigrammatic, *εἰκονολογία, στηλογραφία, titulus,* also *simplex et perfectus,* though not *humilis.* Franklin's personality, however, reflected the humility of the Quaker, and humility was one of the thirteen virtues he advocated, recommending imitation of Jesus and Socrates. The *miktam* on the bust of Franklin, with which D'Alembert welcomed him as a member of the French Academy, is generally cited in the form *Eripuit coelo fulmen sceptrumque tyrannis.* It seems to have been suggested by the German adventurer Baron Friedrich von der Trenck who was confined by Frederick the Great in the fortress of Magdeburg for ten years. It is based on a line (1, 104) in the *Astronomica* of the Roman poet Manilius (c. 12 B. C.) and Cardinal Melchior de Polignac's posthumous *Anti-*

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[1] *Cf.* the notes on Chamisso's poem *Die Mutter und das Kind* in the edition of the Bibliograph. Institut, vol. 2. p. 406, *ad* p. 144.

Lucretius, 1, 96 (1745). Manilius says of human reason: *Eripuitque Jovi fulmen viresque tonandi*, and Polignac's line, which is aimed at Epicurus, is: *Eripuit fulmenque Jovi Phoeboque sagittas.* The inscription on the bust of Franklin is often attributed to Turgot. The great French economist was fond of verse-making. He translated the fourth book of the Æneid into French hexameters, and Voltaire called this rendering the only *prose* translation in which he found any enthusiasm. Turgot opposed, on grounds of economy, the participation of France in the American War of Independence (EB11 27, 413ª. 416ª).

Professor Kurrelmeyer presented a communication on *Pisschulle—Pistol(e)*.

Various etymologies have been suggested for *Pistol(e)*. which, in this spelling, appears almost simultaneously in French, German, and English texts of the third quarter of the sixteenth century. Contemporary writers derived the word from the name of the Italian city of Pistoja, where the weapon itself was thought to have originated. This etymology is accepted, in some cases with reservations, by Diez, Körting (*Lat.-rom. Wbch.*, 1891), the *NED*, the *DWb.*, and Kluge (*Etym. Wbch.*, 1915). In his third edition (1907) Körting prefers to derive the word from * *pisto*, the etymon of French (and English) *piston*, 'Stampfe, Kolben.' Similarly, Frisch, in his *Teutsch-Lat. Wbch.* (1741), had proposed to connect the word with *pistillum*. All the lexicographers mentioned agree to this extent, that they attribute to the word a Romance origin, as does also Weigand in his *Deu. Wbch.*, who even cites a German form *Bistolle*, as of the latter half of the fifteenth century, *i. e.*, a century older than the earliest recorded Romance forms.

An entirely different etymology, proposed more than a quarter of a century ago, is not even mentioned by these lexicographers: in the *Let. slov. Mat.*, 1894, p. 32, which is not accessible to me, and again in 1904 in the *Archiv für Slavische Philologie*, XXVI, 408, K. Štrekelj, in an article entitled "Zur Kenntnis der slavischen Elemente im italienischen Wortschatze," brings forward new grounds for the old view (*die alte Ansicht*) that *Pistole* is derived from Čechish *píšťal*. He then points out that this word, which in the Slavic languages means 'Pfeife, Schalmei, Rohrflöte,' is cited in Dalj's Russian Dictionary in the sense of 'Feuerwaffe, Belagerungsgeschütz, Jagdgewehr, Kugelbüchse, Schrotgewehr.' Štrekelj is unable, however, to show how the word passed into the other European languages, although he correctly surmises that this might well have happened during the Hussite Wars. His further conjecture, that the word came into German through the Bavarian dialect, turns out to be incorrect, as it is in Silesian documents that the forerunners of the later form *Pistole* make their first appearance.[1] The following citations are all taken from Volume VI of the *Scriptores rerum Silesiacarum* (Breslau, 1871). All refer to Silesian military operations of the years 1421-1429, in connection with the Hussite Wars. In the earliest document, an enumeration of the artillery to be contributed by the several Silesian cities, we read (p. 11):

> Item die Sweidnitzer land vnd stete sullen mit jn nemen eine grosse bochse. 15 tarrassteinbüchsen vnd 100 pisschullen. . . . Summa summarum der bochsen, 20 grosse bochsen, domete man mawren fellen mag, 300 tarrasssteinbüchsen, 2000 pisschullen.

An editorial note assigns to *pisschullen* the meaning of "Handfeuerwaffen," but no attempt is made to explain the origin of the word. It occurs again in two documents of the year 1429, each time in a slightly different spelling:

> auch so haben wir eyn wenig pulffer und vier pischczaln mit uns weg brocht (p. 78). vnd das man vndir sie rechte sere schoss mit büchsen, pischoln etc. da gingen sie abe (p. 83).

It hardly needs to be pointed out that this latter spelling is very close to our modern *Pistol(e)*. A clue to the etymology of the word is found in still another passage, from a document dated 1427:

> czwu adir dry steynbuchsen vnd pulver vnd steyne, dorczu eyne notdorfft. vnd ouch pfeiffen vnd hawfenicz, das meisten, so her mag gehaben (p. 55).

What were these *pfeiffen?* Evidently some sort of fire-arm, for the term *hawfenicz*, coupled with them, is the Bohemian *hufnici* (this spelling is found on p. 168), which later appears as *Haubitze*,

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[1] "Die Entlehnung des slav. Wortes in die europ. Sprachen ist bei dem mächtigen Aufschwung des Feuerwaffengebrauchs in den Hussitenkriegen nicht unglaublich. Die Entwickelung des slavischen *píšťal* zu *Pistole* ist bei Annahme der Vermittelung durch Deutsche bairischen Stammes nicht schwer erklärbar." I may state here, that Štrekelj's article, which is not mentioned in the usual reference books, only came to my notice after the present study had been practically completed, by reference to Fascicle 7 (1914) of Meyer-Lübke's *Romanisches Etymologisches Wbch.* Here the Romance word is definitely derived from the German: "Das deutsche Wort würde auf tschisch *píšťal* "Pfeife," "Röhre," alt auch "Schiessgewehr," russisch *pištal'*, "Schiesswaffe" beruhen, doch fehlt die historische Begründung dieser Auffassung; zu *Pistoja* Diez Wb. 250 ist auch formell schwierig."

English *howitz(er)*, French *obus*, etc. If we now look up the Bohemian equivalents of *Pfeife*, we find in modern dictionaries *pistal*, pipe, whistle, while Dobrowsky[2] records *pisstale*, 'Pfeife, in der Musik'; *pastussi pisstala*, Hirtenpfeife; similarly, in Polish, pipe, fife, reed are rendered by *piszczalka*, a form closer to the German spelling *pischczal* quoted above. It is safe to assume, therefore, that in both Polish and Bohemian of the early fifteenth century the word *pistal* was used also in the sense of fire-arm; three of the German writers above quoted took over this word bodily, just as *hawfenicz* was taken over, while a fourth translated it by its German equivalent *Pfeife*. As Silesia, where all these documents were written, is situated directly between Poland and Bohemia, it is difficult to decide from which of these languages the word was actually taken.

The transfer in meaning from pipe, tube, to gun, fire-arm, particularly at a time when these were just coming into general use, hardly requires comment. The German *Rohr*, at the present day, denotes not merely pipe, reed, tube, but also gun, gun-barrel; *Feuerrohr*, Flinte, is used by Kirchhof, Gryphius, and Goethe; to the instances of *Handrohr* cited in the *DWb.* may be added the following: mit 18 hakenpuchsen, handroren, stehlenbogen woll staffiret.[3] Similarly the simple word *Rohr:* 200. halbe Hacken, und sonst lange Röhr, neben etlich Paar kurtzen Röhren.[4] Cf. also *DWb.* VIII, 1121.

It is difficult to determine exactly what sort of fire-arm was designated by *pischulle:* to judge from similar lists of the fifteenth century, it might have been either a *Hakenbüchse* or a *Handbüchse*. Compare e. g.: eyne vierteil buchsse, vier hawffnitzen vnd dreyssig hockenbuchssen . . . eine hawffnitze, eine tharres vnnd tzwelff hockenbuchssen.[5] aindlef hauptpüchsen vnd acht mörser, viel haufnitz, terraspuchsen, hackenpüchsen vnd hanntpuchsen.[6]

It may be noted in conclusion that a word *Pischull, Pischulle*, schlechtes Bier, is recorded in Frischbier's *Preussisches Wörterbuch*, but it seems to have a different etymology.

Professor Chinard read the principal paper on *L'exotisme sentimental dans la littérature française au dix-neuvième siècle.*

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[2] Ausführliches . . . deutsch-böhmisches . . . Wörterbuch. 2 Bde., Prag, 1800-1821.

[3] *Scriptores rerum Prussicarum*, V, 475: event of 1516.

[4] *Script. rer. Siles*, IV, 16: event of 1578.

[5] *Script. rer. Lusaticarum*, N. F. II, 89: event of 1488.

[6] *Fontes rerum Austriacarum*, 2. Abt., XX, 103: event of 1546.

L'auteur de cette communication s'est proposé, tout d'abord, d'arriver à une définition du mot exotisme. Après avoir examiné les différentes formes d'exotisme dont on peut constater l'existence dans la littérature française depuis la Renaissance jusqu'à nos jours, il est arrivé à cette conclusion que pour le dix-neuvième siècle on peut distinguer trois formes principales d'exotisme: un exotisme pittoresque, qui traite au point de vue descriptif des aspects de pays inconnus ou mal connus; un exotisme philosophique qui a pour thème principal la comparaison des civilisations étrangères et surtout des sociétés primitives avec notre propre civilisation, enfin un exotisme psychologique, ou sentimental, qui s'efforce de comprendre et de décrire des mentalités entièrement différentes de la nôtre.

Cette dernière forme de l'exotisme s'est développée surtout au dix-neuvième siècle à partir de Chateaubriand qui en reste le grand maître. Les romantiques, malgré leur désir de faire de la couleur locale, n'ont guère fait que de l'exotisme pittoresque. C'est le côté pittoresque des civilisations disparues ou des siècles passés qui les a attirés. Ils ont vu dans l'exotisme un moyen d'échapper à leur milieu, mais dans un décor nouveau, ils ont placé des personnages qui ont la mentalité de Français du commencement du dix-neuvième siècle. C'est le cas de Victor Hugo dans ses drames et dans ses romans historiques; c'est le cas de Vigny dans ses poèmes; c'est encore le cas de Gautier dans des ouvrages comme *Le roman de la Momie.* Dans leurs récits de voyage même, ils se montrent plus soucieux de décrire de nouveaux paysages que de pénétrer la psychologie des peuples étrangers qu'ils visitent.

Il faut attendre jusqu'à Flaubert avec *Salammbô* pour trouver une tentative de ce genre. Mais, il n'en reste pas moins que c'est seulement avec Loti que l'on voit reparaître dans la littérature française l'exotisme sentimental que Chateaubriand y avait introduit et dont il avait donné dans les *Natchez* la formule la plus complète.

Three hundred and thirty-eighth meeting
February 20, 1920

On the motion of Professor Kurrelmeyer the usual order of business was changed, and the principal paper was read first, by Professor Shorey on *Euripides and the Radicals.*

The main body of this paper consisted of illustrations of the uses to which Euripides, and more particularly Professor Murray's translation of Euripides, has been put in the advanced liberal or radical literature of the last twenty years. The introduction treated first

of the qualities in Euripides' mind and art that have always attracted minds of this type, and then went on to present a sketch of the history of opinion about Euripides. The modernist preference of Euripides is due largely to the influence of Browning, Mahaffy, and Professor Murray. The use or abuse of Euripides in pacifist, radical and other propagandas was exemplified in quotations, misquotations, mistranslations of texts too numerous and too specific to reproduce in this summary.

Professor Haupt then presented a minor communication on *The Logos in Goethe's "Faust,"* which was discussed by Professors Bloomfield, Shorey, Collitz, and Miller.

In the first act of Goethe's drama (ll. 1224-1237) Faust is dissatisfied with the traditional rendering of John 1, 1. *In the beginning was the Word*, and prefers the translation *Im Anfang war der Sinn*, i. e. *Reason;* but then he thinks it ought to be *Im Anfang war die Kraft*, i. e. *Force*, and finally he writes *Im Anfang war die Tat*, i. e. *Action*. Force is what modern physicists call *energy*. While λόγος may mean both *Word* and *Reason*, it cannot denote *Force* or *Action*.. The rendering *Sinn* = Reason as well as the substitutes *Kraft* = Force and *Tat* = Action, it may be supposed, were inspired by Herder (BL xxii. xxxiv. xxxvi).[1] The English translations of *Faust* have for *der Sinn, die Kraft, die Tat* the unsatisfactory renderings *the sense*, or *the thought*,[2] or *the mind; the power* or *the force; the deed* or *the act*. According to the Stoics, *Reason* (λόγος) was the active principle in the formation of the universe (EB^{11} 25. 942^{b}; 13. 310^{a}; 24. 375^{b}). We find Stoic phraseology not only in the NT, but also in the OT (*Eccl.* 2). The reason why the rendering *Reason* has not been adopted by the theologians is that Faith and Reason are supposed to be incompatible. The strangling of Reason is regarded as a most acceptable offering. Tertullian is said to have formulated the principle *Credo quia absurdum;* in *De carne Christi* 5 he says: *prorsus credibile quia ineptum est*. Even Luther denounced Reason as a *cunning fool*, a *pretty harlot* (EB^{11} 23. 22^{a}. 21^{b}). The peace of God is superior to all reasoning (Phil. 4, 7).

This paper has been published in full in vol. 41 of the *American Journal of Philology*, pp. 177-180.

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[1] For the abbreviations see *Journal of Biblical Literature*, vol. 38, p. 142.

[2] Schiller, *Die Worte des Glaubens* (1797) says: *Und ein Gott ist, ein heiliger Wille lebt, | wie auch der menschliche wanke; | hoch über der Zeit und dem Raume webt | lebendig der höchste Gedanke.*

Three hundred and thirty-ninth meeting
March 19, 1920

Dr. Truman Michelson, of the Bureau of American Ethnology of the Smithsonian Institution, presented a minor communication on *The Linguistic Affinities of Ardhamāgadhī Prākrit.*

Professor Lüders, in his *Bruchstücke Buddhistischer Dramen*, makes the claim that Ardhamāgadhī Prākrit is a descendant of the Asokan Māgdhan dialect. The question as to what early Middle Indic dialect Ardhamāgadhī is descended from is not easily solved, for almost all Ardhamāgadhī texts are so badly edited as to be unusable; and the Ardhamāgadhī in even well edited texts is not uniform: either Ardhamāgadhī as we actually have it, represents no dialect spoken at any one time or place (and this is Professor Michelson's opinion) or it has numerous loans from other dialects. The numerous doublets make one or the other of these hypotheses imperative. In spite of the mixture, there remains sufficient evidence to show that the bulk of Ardhamāgadhī as we have it in the redaction of the canonical books of the Śvetāmbara Jains which has come down to us, can not be descended from Asokan Māgadhan. The article will be printed in extenso in the *American Journal of Philology.*

Mr. Snyder presented a minor communication on the word Logos, which was discussed by Professors Haupt, Collitz, Bloomfield, and Miller.

At a meeting of the Greek Seminary of the Johns Hopkins University on January 23, 1914, Professor Gildersleeve, speaking of Heraclitus, commented briefly on the beginning of the Fourth Gospel (see above, p. 18) and stated that ἐν ἀρχῆ ἦν ὁ λόγος should evidently be translated: In the beginning there was Reason, and Reason was with God, and Reason was God. In the notes on John 1, 1, the Cambridge Bible for Schools and Colleges calls attention to the fact that Tertullian mentions the renderings *sermo* and *verbum*, but prefers the translation *ratio.*

Professor Lancaster then read a short paper on *A Note on Elizabeth and Essex.*

The legend that Queen Elizabeth once gave to the Earl of Essex a ring with the promise that, if he ever sent it to her, she would pardon any crime he might have committed; that, when condemned to death, he did send her the ring, but that it was purposely withheld by the woman to whom he intrusted it till after his execution is usually traced back as far as Aubéry Du Maurier's *Mémoires pour servir à l'histoire de Hollande* (1680), a version said to have come originally from Sir Dudley Carleton, or to the *History of the most renowned Queen Elizabeth and her great favorite*, an anonymous book which appeared about 1650 and was followed by Francis Osborn in 1658. But the story had already appeared in La Calprenède's *Comte d'Essex*, published in 1639, written a year or two before. The author declares that what is apparently non-historical in his play is based on memoranda coming from persons of rank who, perhaps, took part in the episode. This evidence shows that the ring-story grew up in England in the first third of the seventeenth century. In the minds of those who repeated the story of Essex there must have been a desire to reconcile the facts that the Queen was in love with him and that she signed his death warrant. The Queen stated to the duc de Biron that she would have pardoned Essex had it not been for his pride, but this explanation was unsatisfactory, for accounts of his death show him to have been almost unduly penitent on the scaffold. An undelivered message would easily explain this contradiction. The use of a token to attest the genuineness of a message was common practice. That this token should take the form of a ring previously given with a promise of pardon may have resulted from a confusion between the case of Essex and that of Cranmer, to whom Henry VIII gave a ring to enable him to appeal from his council to himself, an authentic incident, related by Cranmer's secretary and given wide publicity by Foxe and by Shakespeare, who based upon it *Henry VIII*, v, 1-3. In the original form of the legend there was probably no love affair between Essex and the woman to whom he entrusted the ring, her accomplice was Cecil, and no third woman was introduced.

This paper was discussed by Professors Bloomfield, Collitz, and Wood. Professor Haupt then read the principal paper on *The Poems of Habbakuk*.

The name *Habbakuk* (not *Habakkuk!*) may mean *basil* (Arab. *ḥábaq*, Syr. *ḥáukâ* (BL 91, n. 40).[1] In the legends of Bel and the Dragon, which we find in the Septuagintal additions to the Book of Daniel, Habbakuk is said to have been carried by an angel from Judea to Babylon, so that he might give Daniel in the lion-pit a dish which he had prepared for the reapers in the field. This story is said to be taken from the prophecy of Habbakuk, the son of Jesus, of the tribe of Levi (DB 2, 272^b). Jesus (or Joshua) may be the leader of the Hellenizers in Judea at the beginning of the reign of Antiochus Epiphanes of Syria (175-164 B. C.). He was a younger brother of the high priest Onias III (*Pur.* 6, 9) and Jesus' (Grecized: Jason's) son may have been more like his noble-minded uncle. The Book of Daniel was composed in 164, and the poems of Habbakuk in 161.

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[1] For the abbreviations see *Journal of Biblical Literature*, vol. 38, p. 142.

Sir George A. Smith inserts Hab. 1, 5-11 after 2, 4, following Budde; but vv. 6-9 must be inserted after 1, 17, and 1, 10. 11 should be appended to 2,4 preceded by 2, 5. 6. According to Budde, 1, 2-4 describes the oppressions of Israel by the Assyrians,[2] but the violence and distress complained of represent the sufferings of the Jews during the Syrian persecution at the beginning of the Maccabean period. The *wicked* are the Hellenizers, who were willing to sacrifice the Mosaic Law to Greek culture, and the *righteous* represent the faithful Jews, while *traitors* denotes the Jewish apostates (AJSL 19, 139, n. 32). The hemistich translated in AV: *The just shall live by faith* (Hab. 2, 4) means *The righteous will survive despite their firmness* in resisting Antiochus Epiphanes' edict that Jewish rites should cease and heathen customs be observed, under pain of death. The phrase *The just shall live by faith* has been spiritualized in the NT, but there is no basis for the doctrine of the justification by faith in the poems of Habbakuk.

The work, which JHVH will do in the days of the people apostrophized in 1, 5, although they will not believe it when told, is the restoration of religious liberty and political independence. In 162 Lysias, the regent-guardian of Antiochus Epiphanes' son, granted the Jews permission to live after their laws as they did before, and the yoke of the heathen was taken from them in 142 (1 Mac. 6, 59; 13, 41).

The Maccabees knew that their hopes could not be realized at once, but they were willing to wait, firmly convinced that their purpose would be accomplished without fail, that religious liberty and political independence would come, and not too late (*Mic.* 38, n. 17). In the New Year's message cabled to Ireland on Dec. 26, 1919 De Valera said: Endure yet a little while. You will be sustained. The year 1920 may see the Republic of Ireland officially recognized by the United States, and then final victory after 750 years of work and prayer (*cf.* Hab. 2, 3). On March 18. 1920 the U. S. Senate passed a resolution of sympathy with the aspirations of the Irish people for a government of their own choice, declaring that when such government is attained by Ireland—a consummation, it is hoped, is at hand—it should promptly be admitted to the League of Nations.

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[2] *Cf.* Kalinski (1748) cited in Delitzsch's *Habakuk* (1843) p. xxiv.

Judas Maccabæus was the George Washington of the Maccabean rebellion, and the Syrian generals Apollonius, Gorgias, Lysias, Nicanor, Bacchides correspond to the English generals in the American War of Independence, Gage, Howe, Clinton, Burgoyne and Cornwallis. Just as the anniversary of the capture of General Cornwallis at Yorktown (Oct. 19. 1781) was long observed as a holiday with parades and sham battles, so the defeat of Nicanor at Adasa on the 13th of Adar 161 B. C. was celebrated at the Feast of Purim (*Mic.* 15, n. 14).

Habbakuk (1, 10. 11) says of the Maccabees:

> They'll make a mock of the great king.
>   all princes are a scoff unto them;
> They'll laugh every stronghold to scorn,
>   They'll throw up earthworks and take them.
> Then they'll sweep by as the wind, and pass on,
>   they'll destroy them, and sacrifice to God.

This triplet is universally referred to the Chaldeans, but it describes the valor and mobility of the Maccabees. The great king (JSOR 2, 81, n. 21) is the king of Syria, and the princes are his generals (*Mic.* 38, n. 11). For the destruction of the strongholds *cf.* 1 Mac. 5, 4. 28. 35. 36. 44. 51. 65. 68; 10. 84; 11, 4. 20. 48. 61. 66; 12, 33; 13, 51, and for the sacrifice: 1 Mac. 5, 54.

The Chaldeans in the poem of Habbakuk are the Syrians. Nebuchadnezzar in the Book of Daniel represents Antiochus Epiphanes. In Ps. 137 the Seleucid kingdom is apostrophized as Babel's daughter, thou she-devastator (*Mic.* 55, n. 49). In other Maccabean poems we find Assyria for Syria, and Nineveh for Antioch (*Mic.* 54, n. 47; *Joel* 382; JBL 38, 158). The Roman Catholic Nestorians in Mosul, Bagdad, Mardin, Diarbekr, Urmia, &c. are now called Chaldeans; their patriarch has the title Chaldean Patriarch of Babylon. The name Chaldeans for the Syrians of the Maccabean period is more appropriate than the term Chaldee for Biblical Aramaic.

The two triplets describing the Chaldeans in Hab. 1, 6-9 may have originally referred to the Chaldeans of Nebuchadnezzar; they may have been composed by a pre-Exilic poet, but they were quoted by the Maccabean author of the Book of Habbakuk (*Mic.* 30, n. 41).

In the Maccabean homily known as the Book of Joel an ancient poem describing an invasion of locusts is quoted, but to the hearers of the homily the locusts symbolized the Syrians who came *locusting* upon Judea (*Joel* 388). The pre-Exilic original of the two triplets referring to the Chaldeans in Hab. 1, 6-9 may have begun *For, lo, I raise up the Chaldeans*, referring to JHVH, but in the Maccabean poem we must read: *For, lo, he raises up the Chaldeans*, i. e. the Syrians, referring to Alcimus (*cf.* JBL 38, 161) who solicited help from the Syrians, whereupon Demetrius sent an army under Bacchides to install the ungodly Hellenizer as high priest (1 Mac. 7, 9). These two triplets should stand at the end of c. 1, preceded by v. 17.

The first poem in the Book of Habbakuk consists of eight triplets which may be grouped in four stanzas. They are followed by two stanzas in the same meter, containing four imprecatory triplets, each beginning with *Woe!* (JAOS 40, 221). Also the pæan in c. 3, which was afterwards incorporated in a hymnal for the Temple service, exhibits the same rhythm with 3 + 3 beats in each line; but of the five stanzas, each of which consists of two triplets, two represent later additions. The first of these is an illustrative quotation describing JHVH's coming from Teman, just as the triplet at the beginning of the Song of Deborath, describing JHVH's departure from Seir is secondary (WF 225; JAOS 34,418). The final stanza in Hab. 3, 17. 18 is a euphemistic liturgical appendix (JBL 31, 123; *Mic.* 42, n. 16) which may have been added in the days of Simon (142-135). The famine alluded in the first triplet is mentioned in 1 Mac. 9, 23 (see *Joel*, p. 383, l. 11). The original hymn in c. 3 (JHUC, No. 316, p. 20) was composed after the victory over Nicanor in 161 and antedates the patriotic poem predicting the survival of the faithful. The pæan was written before the death of Judas Maccabæus, but the preceding two chapters reflect the situation after this tragic event, when the wicked (*i. e.* the Hellenizers) began to put forth their heads in Judea, and there arose up all such as wrought iniquity. Bacchides chose the wicked men and made them lords of the country. They brought Judas' friends to Bacchides who took vengeance on them; so there was a great affliction in Judah, which was heightened by a very great famine (1 Mac. 9, 23-26).

The first stanza in c. 1, comprising two triplets of elegiac pentameters, represents a liturgical introduction which has displaced the first line of the original poem (JAOS 34, 418). It may be restored on the basis on Ps. 94, 16, while the last line of the pæan in c. 3 may be restored on the basis of Ps. 119, 21 and Is. 13, 11. The sequence of the genuine verses in c. 3 should be: 2. 15. 16. 13^a. 12.

11^b. 13^b. 14. 9. 11. 8, and in cc. 1. 2: 1, 12-14. 17. 6-9; 2, 1-3. 5. 6^a. 4; 1, 10. 11; 2, 6-17.

A metrical translation of the poems of Habbakuk with restoration of the Hebrew text and critical and explanatory notes will be given elsewhere.

Three hundred and fortieth meeting

April 16, 1920

President Collitz appointed Professors Haupt, Bright, and Wood a nominating committee to report at the May meeting.

Professor Kurrelmeyer presented a minor communication on Rostorf's *Dichter-Garten*, Würzburg 1807, and exhibited a copy containing contributions by Sophie Bernhardi, Rostorf (K. G. A. v. Hardenberg), Fr. Schlegel, and Sylvester (G. A. v. Hardenberg). Only two other copies of this publication are known to exist, which probably accounts for the fact that Goedeke (*Grundriss*, v. p. 23) fails to take notice of Fr. Schlegel's contribution, consisting of thirty-one poems. These, in part, show interesting variants when compared with the text of the Gedichte, 1809, and of the *Sämmtliche Werke* of 1823: *e. g.*, *Das versunkene Schloss* (p. 42); *Eulenspiegel* (p. 56); *Fortunata* (p. 164).

Professor Haupt then spoke on *The Silver Cord and the Golden Bowl.*

Nearly thirty years ago, on April 17, 1891, I presented to the University Philological Association a paper on the Book of Ecclesiastes, in which I explained Eccl. 12, 1-7 as an allegorical description of senile decay. Grotius (1644) said of these verses: *Poeticis locutionibus, multis intersertis metaphoris, describit senectutis incommoda.* The view which I advanced in 1891 (JHUC, No. 90, p. 115^a)[1] that a considerable portion of the book consisted of subsequent additions by various glossators, explanatory, supplemental, illustrative, polemical, has since been adopted by Siegfried, McNeile, Barton, Jastrow, &c. My lecture on Ecclesiastes (1894) was reviewed by Siegfried in TLZ 20, 513. My translation of Ecclesiastes was published in 1905 (*cf.* TLZ 30, 672; 31, 676).

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[1] For the abbreviations see the *Journal of Biblical Literature*, vol. 38, p. 142.

I explained the *silver cord* and the *golden bowl* in Eccl. 12, 6 as the *spinal cord* and the *brain,* but the breaking of the golden bowl does not mean that the brain loses its power when old age sets in, as Jastrow states in *A Gentle Cynic* (Philadelphia, 1919). Nor is Jastrow's explanation correct that the hemistich *the silver cord is severed* means: the spine is bent, so that one no longer walks erect, although the same interpretation was given by André du Laurens (AJSL 32, 144) and Grotius (*marcescat medulla dorsi, unde fit ut dorsum curvetur*). Instead of *vase d'or* Laurens rendered: *aiguière d'or* and referred this to the heart. The majority of the modern commentators think that the golden bowl and the silver cord denote a golden lamp hanging by a silver cord: the cord is severed, the lamp falls, the bowl is broken, the oil lost, and the light goes out, which is supposed to be a fit emblem of the sudden dissolution of the body and the escape of the spirit (so Barton, 1908). For the correct interpretation of Zech. 4, 2, on which this explanation is based, see JBL 32, 118. According to H. A. Hahn (AJSL 32, 141) the silver cord is the wick of the lamp. Augusti-DeWette (1809) rendered: *goldener Leuchter,* and Philippson-Landau-Kaempf (1863): *goldene Ampel.*

The breaking of the golden bowl and the severance of the silver cord do not refer to the breaking of a golden lamp suspended by a silver chain, but to apoplexy and paraplegia. The Targum correctly explains the golden bowl as the brain (*móqrâ ḏĕ-rêšâ*) but interprets the severance of the silver cord as paralysis of the tongue (*iṯʼălám liššân*). The golden bowl denotes not the brain, but the brain-cavity, the interior of the skull containing the brain. In the Talmud (*Ḥull.* 45^{a}) the brainpan (brain-box, brain-case) is called *qĕḍerâ,* pot (BT 8, 939, l. 3; *cf.* BL 116, *ad* 36). In Latin, *testa* is used in the same way, while in Italian it is the common word for *head* (French *tête*). The German name for *brainpan* is *Hirnschale,* i. e. *brain-bowl.* Similarly we find in Greek: σκυφίον (a diminutive of σκύφος, bowl, cup) as a synonym of κρανίον, cranium; *cf.* κάρα, head, Lat. *cerebrum,* and German *Hirn.* Our *skull* is connected with *scale,* bowl or dish of a balance. Lat. *calva* may be combined with the Greek poetic word κελέβη, cup, bowl. We must read in Eccl. 12, 6: *i̯ĕruttáq,* it is unchained, unfettered, disjoined (not *i̯êraṯéq,* JBL 36, 46) and *têrôç* (a form like *i̯êrôʻ,* impf. Nifʻal of *raʻáʻ,* conformed to the verbs *mediæ u̯*). The Targum renders: *tĕhê rĕʻîʻâ;* the Peshita: *ništaḥḥáq;* Graec. Ven. θραυσθῇ; LXX: ἀνατραπῇ which can hardly be a corruption of ἀναρραγῇ or ἀπορραγῇ; the verb ἀνατρέπειν means *to destroy.*

The correct Latin form is not *paraplegia,* but *paraplexia;* παραπληγία instead of παραπληξία is Ionic. We say *apoplexy,* not *apo-*

plegia. Paraplegia denotes especially paralysis of both lower limbs. It is also called spinal paralysis. If the trouble is not due to a lesion of the spinal cord, but to neoplasms of the spinal canal, we have *paraplegia dolorosa.* The ancients, of course, knew nothing of embolism and thrombosis (first investigated by the father of modern pathology, Virchow, in 1845) but they had observed that a lesion of the spinal cord may produce paralysis of the lower limbs: we have an Assyrian sculpture of a lioness with arrows in her spine and both lower limbs paralysed (see Bonomi's *Niniveh*^{3}, fig. 193*; *cf.* Kaulen^{5}, fig. 97; Maspero, *Ägypten und Assyrien,* Leipsic, 1891, fig. 141). Paralysis (especially hemiplegia) and apoplexy are often combined, but there may be apoplexy without paralysis, and paralysis without apoplexy.

The Hebrew pessimistic poet calls the sudden loss of consciousness caused by the rupture of a blood-vessel in the brain a *break of the golden bowl,* and he alludes to the interruption of the motor and sensory paths which connect the brain with the spinal gray matter as a *severance of the silver cord.* The gray substance of the spinal cord is encased in white. Shakespeare (*Macbeth* 2, 3. 137) speaks of Duncan's *silver skin laced with golden blood,* but *golden* in our passage means *precious;* cf. *Golden apples on silver branches* in Prov. 25, 11 (ZDMG 64. 711, n. 2).

Professor Collitz presented a minor communication on *Ags. ræfnan.*

In Anglo-Saxon we find the following verbs of similar sound and meaning:

(1) *æfnan* 'to perform, execute, labor, show.' This verb has a companion in O. Norse *efna* 'to perform, execute,' and is derived from a prehistoric form **abnjan,* connected by ablaut with **ōbjan* 'to perform'=O. Sax. *ōbjan,* OHG. *uoben* (i. e. *üöben*), MHG. *üeben,* Mod. G. *üben.* (Cf. Falk and Torp, *German. Wortschatz*=Fick, *Vergl. Wörterbuch*^{4} III, p. 15 f.)

(2) *efnan* 'to even'='to level, bring to a level with, to make equal.'

efnan, to be sure, occurs sometimes also in the sense of 'to perform' as a mere variant of *æfnan* (Cf. Sievers, *Ags. Gramm.*^{3} § 164 n., Bülbring, *Altengl. Elementarbuch,* § 169 b; Toller, *Suppl.* s. v. *efnan* II.) In the meaning of 'to even, to level,' etc., however, it must be regarded as a different verb, identical with O. Norse *jafna* 'to make straight, sleek, adjust' and OHG. *ebanon* 'to even.' These verbs point to a West Germanic weak verb **ebnōn,* for **ibnōn,* parallel to Gothic *ga-ibnjan* and derived, like the latter, from the adj. Goth. *ibns* = W. Germanic **eb'n* 'even.' (Cf. Toller's *Suppl.* s. v. *efnan* I, where the correct etymology is found.)

(3) *ræfnan* (pret. pl. *ræfndon*) 'to endure, suffer, undergo; to do, perform, accomplish, carry out,' and

(4) *aræfnan* or *āræfnan* (pret. *aræfnde*) 'to bear, endure; to bear in mind, ponder; to carry out, practise, perform.'

In Grein's *Sprachschatz* and Bosworth-Toller's *Ags. Dictionary*, no reference is made under *ræfnan* to the verb *æfnan*. The two verbs, however, are regarded as identical in Sievers' *Ags. Gramm.* § 193 n., and in the Glossary to J. W. Bright's *Ags. Reader ræfnan* is correctly derived from **ar-æfnan*. The initial *r-* of *ræfnan* then is identical with the prefix generally appearing in Anglo-Saxon (as in the Heliand) as *a-*, e. g., in *ā-risan* = Mod. Engl. *arise* or Mod. Engl. *awaken*. The latter again cannot be separated from the Gothic prefix *us-* (=*ur-* when immediately followed by initial *r-*); cf. Ags. *ā-rīsan*=Goth. *ur-reisan*, Ags. *ā-ræran*=Go. *ur-raisjan*, Ags. *ā-rīsan* (*ā-lȳsan*)=Go. *us-lausjan*, Ags. *ā-coren* (prt. pl. of *ā-ceosan*) = Go. *us-kusans*, and numerous similar instances. From the fact that in Anglo-Saxon as well as in Old Saxon the form *a-* is never found before an initial vowel, we may infer that in composition with verbs beginning with a vowel the final *r* of the prefix originally remained intact, in conformity with OHG. verbs like *ar-eiscon, ar-offonon, ar-ougen* (see for additional examples Graff, *Ahd. Sprachschatz* I, 396). Such verbs, however, being in the minority as compared with those in which *ar-* had been changed before consonants to *a-*, the prefix *ar-* made the impression of an irregular element, and was, therefore, either replaced by more familiar prefixes (e. g. Ags. *ge-āscian, ge-openian, ge-īewan*) or reduced to simple *r*, so as to lose the appearance of a prefix, and to become instead the initial consonant of a new verb.

The reduction of the form *ar-* to *r-* has a parallel in the Old Icelandic verb *reyna* 'to prove.' The latter—as I expect to show elsewhere more in detail—is the equivalent of **ar-augnian* 'to give evidence' or 'to obtain evidence,' a verb found in Mod. German in the form *er-eignen* (earlier *er-äugnen*). It is a peculiar coincidence that both in Anglo-Saxon and in Icelandic this *r-* has apparently survived in but a single instance.

If *ræfnan* has developed from *aræfnan*, the question arises whether the Ags. verb *aræfnan*, generally looked at as a compound consisting of *ā* + *ræfnan*, may not be separated into *ar* + *æfnan*, so as simply to represent the earlier form of *ræfnan*. (The latter view seems to be held by J. R. Clark Hall in his *Concise Ags. Dictionary*). We may feel tempted to decide the matter in favor of the current explanation on account of the alliteration in *Andreas* l. 817:

rodera rædend þā þu aræfnan ne miht,

where r is regarded as the initial consonant of the syllable *ræf*. But the form of the alliteration may be explained here as due to the analogy of such familiar instances as *ā-rædan: rædan*, or *ā-ræman: ræman*, or *ā-ræran: ræran*, or *ā-reccean: reccean*, etc.

With the means at our disposal it will hardly be possible to decide the question with certainty. But there remains at least the possibility of seeing in the *ar-* of *aræfnan* a remnant of the prefix *ar-*, though later on (i. e., at a time when *ræfnan* had become the current form) the initial *a* may have been felt to be of the same nature as that in *ā-rædan, ā rīsan*, etc.

After a discussion of Professor Collitz's communication by Professor Bright, Professor Bloomfield read the principal paper on *The Language of the Hittites.*

Following certain preliminary announcements, Professor Friedrich Hrozný, of the University of Vienna, published in 1917 'Die Sprache der Hethiter, ihr Bau und Zugehörigkeit zum indogermanischen Sprachstamm' (Leipzig, 1917), in which, as says the title, he claims that the cuneiform language of this interesting people, excavated on the site of the Hittite capital at Boghazköi in Cappadocia, is Indo-European. His work will certainly count among the memorable events in the history of language and ethnology. The acumen, learning, and infinite diligence displayed by the author is excelled only by the depth of his sincerity which almost reminds one of the prophet. One thing is clear without further ado: if his illustrations are based upon sound decipherment of the cuneiform character in which Hittite is written; if his translations are impeccable; and if the resulting speech units admit of no other linguistic interpretations than those proposed, then Hittite must be Indo-European.

In general, Hronzý's plea that Hittite morphology is Indo-European is the strongest point in the book. Let us enter with him into the heart of the matter. There is a non-thematic, or mi-verb, yami which means, rather unexpectedly, 'I make' (not, 'I go'). Its conjugation in the present active is as follows:

	Singular	Plural
1.	yami	yaweni
2.	yaši, yeši	yatteni
3.	yazi, yazzi, yezzi, yizzi	yanzi, yenzi

This paradigm is certainly impressive, and it has impressed. I would remark that the z of the third person forms is not as simple as it might seem. We instinctively think with the author that it is for t, mouillated by i (cf. Gr. σι for τι). But the participle present in Hittite, according to the same grammatical theory, ends in za, e. g. adanza 'eating':[1] adanzi 'they eat.' Now the morphological connection between these two types in I. E. is such that the third plural of the present in -nti minus the i is the stem of the participle (φέροντι: φέροντ-). The explanation of -zi through palatalization, therefore, leaves za unexplained. We encounter the same difficulty several times more: zig is assumed to be the word for 'thou,' where both the z and the i are difficult (comparison with Gr. σύ-γε is a whitened sepulchre). The assumed root ad 'eat' shows the forms ezzazi, ezzazzi 'he eats'; ezzateni 'ye eat'; ezzaten, ezaten, 'eat ye'; and ezzai 'he eats,' flanked by adanzi 'they eat,' and adanza 'eating.' Disturbingly the same type of participle papranza 'cooking' occurs also as paprandaza (p. 83), and furthermore the whole class is supposed to have passive, as well as active value. As inspection narrows down to the two elements zi and za there steals upon me the sense of the presence of two particles, postpositive conglutinates, adverbial, deictic, or localizing, and this impression is not weakened by the apparent existence of an infinitive-supine in -wanzi, -uwanzi, which interchanges with a parallel form without -zi, e. g. su-ma-aš wa-al-ah-hu-wa-an-zi u-iz-zi 'he comes to annihilate you,' and bi-eš-ki-u-wa-an ti-i-ia-u-e-ni 'we come to furnish (cavalry)'; see p. 91. I am inclined to think that Hittite interpretation will have to contend sooner or later with a different theory, according to which it is not inflectional at all, in the sense of I. E. or even Shemitic. It may be a language which has no morphology in the sense to which we are accustomed, but rather carries on its correlations by means of deictic, modifying, allusive particles of great mobility and freedom of position. I recommend the inspection of this same element za in a variety of other connections, particularly as imbedded in long groups of other particles: ZAG -za 'to the right side' (which by the way varies with ZAG -az; see pp. 4, 11, 13, etc.; nu-za, and nu-za-kan 'now then'; ma-ah-ha-an-ma-za-kan 'when further for me'; am-mu-ug-ma-za; am-mu-ug-wa-za, am-mu-uk-ka-za, 'I further' and 'me further'; see the particle za in the Index to the Grammar, and particularly pp. 102, 106.

The present indicative of yami as given above is not the only type of present inflection. There is another, about as glaringly different as can be imagined, in which the three singular forms are represented by dāhhi 'I give,' datti or daitti 'thou givest,' and dāi 'he gives.' Many verbs show freely forms of both types. Thus arnumi 'I bring' makes its second singular either arnuši or arnutti; the third person of dā 'give' is either dāi or -dāizzi, and the inflexion of pā 'give,' or 'draw' is in the singular:

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[1] The type is nominative singular; one would expect adanzaš.

1. pāimi or pahhi. 'I give.'
2. pāiši or paitti. 'thou givest.'
3. paizzi or pāi, 'he gives.'

The thought comes to the mind of the author, well-versed as he is in I. E. organisms, that the inflectional pahhi, paitti, pāi represents the o- verb or thematic conjugation. With pahhi he compares I. E. bherō (φέρω), but this is hardly more than what the physicians call a *placebo*. The h of the form is a persistent 'formative' element (p. 177) so that the ending is hi. The form dāi reminds Hrozný of Gr. φέρει, itself problematic; Scheftelowitz thinks of Aryan e (= ai) the middle ending of the 1st and 3d singular perfect (p. 2, note 2). No real conviction of either speaker or hearer goes with this. Again, if we confront mi and ti as first and second person suffixes, we can hardly fail to remember the same two suffixes in Arzawa at the end of nouns in the sense of 'mine' and 'thine' (Knudtson, Zwei Arzawa Briefe, p. 41; Bugge, p. 100; Torp, p. 113). These same suffixes, as well as forms mu, and ta (du), appear also in the Boghazköi documents (p. 120, and 128) with the full measure and weight of non-Indo-European conglutinates; explanation of one without the other seems to be illusory. It is as though in I. E. Greek one could say not only φᾶμι 'I say,' but also οἴκο-μι 'my house.'

Perhaps second in importance as regards organic appearance and breadth of scope are the noun-stems in a, i, and u, making nominatives in as, is, and us. An Indo-Europeanist's mind is sure to respond to the stimulus of u-stems. This category when oxytone, is the very own of primary adjectival function, describing physical properties. In Latin adjectives in ú have regularly been extended into u-i stems. In order to be on familiar ground I cite first Latin suāvis, brevis, levis, pinguis, mollis, tenuis; in order to show both the extent and primary lexical character of the same type I cite in addition Skt. tṛṣús = Goth. þaúrsus, 'dry'; Skt. pṛthús = Avestan pərəþu; Gr. πλατύς 'broad'; Skt. mrdús = Gr. βραδύς 'slow'; Skt. purús = Gr. πόλυ 'much'; Skt. āçús = Gr. ὠκύς 'swift'; Sk. urús = Gr. εὐρύς 'broad'; Skt. ṛjús, 'straight'; rbhús 'clever'; Greek γλυκύς 'sweet'; βαθύς 'deep'; Goth. tulgus 'firm.' In early I. E.

u-stems have scarcely a respectable rival in this semantic field, except perhaps the primary adjectives in -ró (ἐρυθρό-s = Skt. rudhirás = Lat. ruber, 'red'; Skt. citrá-s = OHG heitar, 'bright'). Of both these types of adjectives, which pervade to this day every nook and corner of I. E. speech, not a single one is to be found in this Hittite of 1500 B. C.; yet their type of inflection is supposed to have remained over. It is as though a Parisian salad had been carried through the house of Hatti, and had left behind nothing but its *soupçon* of onion aroma. The results of speech mixture are varied and not easy to predict, but it is difficult to conceive processes apparently so concerted and intentional as to wipe out all such words as 'sweet,' 'short,' 'light,' 'thick,' 'thin,' 'soft,' 'broad,' 'wide,' 'dry,' 'swift,' etc., etc., of the invading language, yet leave behind the inflection of these words in the orphaned result, so to speak. And the same conditions characterize the i and a- stems; here also there is not left a single member of the I. E. lexicon.

Still a theory as to linguistic appurtenance derives its strength from cumulation. Hittite exercises its most bewitching enchantment in the domain of the pronouns. The personal pronouns present themselves in the following rhythmic shape:

	I	Thou
Nom.	ug, uga, ugga	zig, ziga, zigga
Gen.	ammēl	tuēl
Dat. Acc.	ammug, ammuga, etc.	tug, tuga, etc.
	We	Ye
	anzāš	šumēš, šumāš
	anzēl	šumēl, šumēnzan
	anzāš	šumāš, šumēš

After recovering from the general effect of this list there are a few interesting circumscriptions. Ug, etc., are, of course, assumed to be ego; zig etc. are compared with σύγε. But it is unlikely that the g of one form is not the same as the g of the other, and zi is not σύ, nor, so far as can be seen, anything else Indo-European. The forms ammug, etc., are both nom. and acc., they are compared with ἔμοιγε, but it seems far more natural again to identify their second syllable with the fundamental ug, etc. Therefore, the same is true of the sound ug in tug, etc. These and many other difficulties can perhaps be ironed out by assuming sundry analogies, and there certainly is here a very alluring air of Indo-Europeanism. The climax is reached in the relative, interrogative and indefinite pronoun: masc. nom. kuiš, neuter kuit, gen. kuēl. The indefinite is also expressed by duplication: kuiš kuiš, neut. kuit kuit, or by kuiš ki, neut. kuit ki.

The reader will ask point-blank: 'Is Hittite Indo-European?' I answer that I believe it is, but that I do not feel quite certain. When Tocharian came to light the numerals alone were enough to settle its status. When Tocharian came to light the nouns of relationship were quite sufficient to determine its character: pācar, 'father,'; mācar, 'mother,' prācar, 'brother.' The Hittite words for father and mother are either Anatolian nursery words: addaš or attaš, 'father'; annaš 'mother'; or they are written in Babylonian (Shemitic): A.BU 'father'; AHI-IA 'of my brother'; AHÂTU 'sister.' The Hittite before us has, with the exception of the noun wādar which is also written widár; genitive wedenaš, uetenāš, widēni, hardly a single other I. E. noun; the inflection of the noun is by no means conclusively Indo-European. The verbal inflections seem at points (not all of them brought out here) bewilderingly Indo-European; at other points they are not less bewilderingly mystifying. From the point of view of verb etymology there are not half a dozen verbs that are securely Indo-European, and the total of etymology, with the exception of pronominal etymology—the strong point—is the weakest link in the chain. The heaping of conglutinative particles (ma-ah-ha-an-ma-za-kan 'when further mine,' p. 39) combined with the conglutinative use of personal pronouns, is non-Indo-European, and deserves special investigation. Finally, the over-ripe condition of language at the earliest dating known to I. E. speech history (1500 B. C.) bids us hold still a while longer, on the off-chance that we are facing a perplexing illusion.

Three hundred and forty-first meeting.
May 21, 1920.

Professor Mustard was elected president; Professor Robinson, vice-president; and Professor Kurrelmeyer, secretary, for 1920-1921.

Professor Haupt presented the following minor communications, *The Holy Sepulcher:*

I have been familiar with the Holy Sepulcher from my youth: there is a model of it in the Chapel of the Holy Sepulcher on the road leading to the athletic field of the *Gymnasium Augustum Gorlicense*[1] which I attended from 1867 to 1876; it was constructed under the direction of the burgomaster of Görlitz, Georg Emerich, who made two pilgrimages to Jerusalem in 1465 and 1476 (TLZ 41, 467).[2] A brook at the northwestern end of Görlitz is called Kidron. The Chapel of the Holy Sepulcher in Görlitz represents the chapel in the form in which it was restored after the Kharazmians had plundered the churches of Jerusalem in 1244 (RE^3 7, 54, 21 and 53, 52; 8, 692, 25).

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[1] Established (on the basis of a school connected with the Church of St. Catharine and St. Nicholas, dating from the 11th cent.) in

The Father of Biblical Geography, Edward Robinson, stated in 1841 that the traditional site of the Holy Sepulcher, NW of the Temple, could not be the true one. This locality would seem to have been within the walls of Jerusalem at the time of the Crucifixion. But the place of execution must have been outside the city, in a conspicuous place, beside a frequented road leading to one of the gates, near a garden with a new rock-cut tomb. Nor can Golgotha have been the Mâmilla Pool (JAOS 39, 143, b) NW of the Jaffa Gate, or above Jeremiah's Grotto outside the Damascus Gate.

Golgotha is identical with Topheth in the Valley of Hinnom, S of the Harsith Gate in the southeastern corner of Jerusalem (JBL 37, 233; 38, 45). Also the name of the valley (now filled up with rubbish) between the eastern and western hills, which led to the Topheth in the Valley of Hinnom, was Topheth Valley. The name *Tyropœon* (EB^{11} 15, 332) *Valley*, given by Josephus, is due to a misunderstanding of the original Hebrew name *gê-haš-šĕfôṯ*, in which *šĕfôṯ*, the Hebrew form (Neh. 3, 13) of the Aram. *tĕfâṯ*, Topheth, was misinterpreted as *cheeses* (Tyropœon, *τῶν τυροποιῶν*, means *of the cheesemakers*) on the basis of 2 S 19, 27 (EB 3091. 2423, n. 4). According to Wetzstein (ZAT 3, 276) *šĕfôṭ* in 2 S 17, 29 denotes *thick cream* of cow's milk (not ewe's milk) in small cylindrical wooden containers (see cut in RB 1742). In Damascus, *cream* is called *šifâ-'l-ḥalîb*, top of the milk (*cf.* Austrian *Obers*). The word in 2 S 17, 29 should be spelled with *ś*, not *š*.

Golgotha was a rubbish-heap like the Roman *Monte Testaccio*, formed of potsherds and other refuse. It was therefore known also as Potters' Field, and afterwards is was called Field of Blood, because it was used by the Romans as a place of execution. The two explanations of Aceldama, given in Matt. 27, 8 and Acts 1, 19,

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1565 in a Franciscan friary founded in 1234. The first rector was Melanchthon's friend Petrus Vincentius who had been rector of the University of Wittenberg in 1560. See B. Meth, *Schulgeschichten aus dem alten Görlitzer Kloster* (Berlin, 1909) pp. 5. 9.

[2] For the abbreviations, see *Journal of Biblical Literature*, vol. 38, p. 142.

represent later legends. Matt. 27, 10 is based on a misinterpretation of a line of the Maccabean poem in Zech. 11, 13 (misattributed in Matt. 27, 9 to Jeremiah) where we must read *el-hai̯-i̯açár*, into the treasury (Peshita: *bêt-gázzâ*) instead of *el-hai̯-i̯ôçér*, to the potter. Heb. *i̯açár*, treasury, is a byform of *ôçár*, from *u̯açár* = *naçár* (NBSS 200) just as we have in Aramaic both *i̯ĕḡár* and *ôḡár*, heap of stones.

The original form of Golgotha was *qilqíltâ*, refuse, which is used in the Targums for Heb. *ašpôt* and *ḥarsît* (JBL 37, 233). The form Golgotha, skull, represents a popular etymology: the Romans may have called the Harsith (*i. e.* potsherd-dump) *Mons Testaceus*, and since *testa* means both *potsherd* and *skull*, this name may have been interpreted as Place of Skulls. After the Harsith had been used by the Romans as the place of crucifixion (GJV⁴, *Register*, p. 72ᵇ) for a number of years, skulls may have been more in evidence there than potsherds.

The view that this place was called Golgotha because it resembled a skull, is not satisfactory; nor can we accept the old legend that the name was derived from the skull of Adam which was buried there (Dillm. *Chrest. Aeth.* 16). During the crucifixion the blood of Christ trickled down on the body of Adam and restored him to life (DB 2, 226ᵃ). The skull and the bones at the base of a crucifix represent the skull and bones of Adam (RE³ 7. 52, 25).

The substitution of Golgotha for *qilqíltâ* was favored by the fact that *q* is often pronounced like *g*; even *k* may become *g* under the influence of an *l*, *r*, or *n*: Assyr. *Tukulti-pal-ešarra* appears in OT as Tiglath-pileser, and *Šarru-kênu* as Sargon (JBL 36. 141, n. 3).

The Jews did not crucify persons alive, and even when they gibbeted criminals after their execution, they interred them by nightfall; but the Romans allowed the bodies of crucified malefactors to decay on the cross. Jeremy Taylor (1649) calls Golgotha *a place of death and dead bones, polluted and impure.* The Mohammedans give the Church of the Holy Sepulcher the nickname *Kanîsat-al-Qumâmah*, Church of Rubbish, instead of *Kanîsat-al-Qii̯âmah*, Church of the Resurrection (RB 540ᵃ).

The full text of this paper has been published in vol. 59 of the *Proceedings of the American Philosophical Society*, pp. 237-244.

Gallows and Cross:

Gallows is combined with Lith. *žalga*, pole, post; Arm. *dzalk;* but it seems to be an adaptation of the Biblical *Golgotha* which is interpreted in Matt. 27. 33; Mark 15. 22; John 19, 17 as κρανίου τόπος (Vulgate: *Calvariae locus*). Golgotha represents the Aram.

gulgúltâ, skull, which appears in Arabic as *gálgalah* or *gálagah*. The original meaning is *round*. The Syriac form is *gâgóltâ*. One of the *l*'s was elided, just as we say *fugleman* for *flugelman* = German *Flügelmann*. BA 1, 114 (*cf.* AJP 27, 155) I suggested that *heifer*, young cow, was a Semitic loanword, and ZDMG 65, 107, n. 3 I pointed out that German *Hammel* might be the Arab. *ḥámal*. I have recently noticed that Rask in the list facing p. 302 of his *Undersögelse om det gamle Nordiske eller Islandske Sprogs Oprindelse* (Copenhagen, 1818) combined German *Hammel* with Arab. *ḥámal*. Originally *gallows* (Goth. *galga*, OHG *galgo*, AS *gealga*) denoted the *cross* on which Christ was crucified. In Ulfila's Gothic version we find *e. g.* in Mark 15, 32: *atsteigadau nu af þamma galgin* for καταβάτω νῦν ἀπὸ τοῦ σταυροῦ For Γολγοθᾶ Ulfilas writes *Gaulgauþa* (with *au* = *ŏ*). The cross was the Roman gallows. Lord Byron used *ravenstone* for *gallows*, which is an adaptation of the German *Rabenstein*,[1] i. e. a rock (eminence, hillock) where the ravens feed on the bodies of gibbeted malefactors. Horace (*Ep.* 1, 16, 48) says: *Non pasces in cruce corvos.* In German the raven is called also *Galgenvogel*. Mount Golgotha corresponds in some respects to our Gallows Hill (German *Galgenberg*).

English nickname and German necken:

The term *nickname*, a name given in ridicule or pleasantry, is a misdivision of *eke-name*, just as we have *an adder* (German *Otter*) for *a nadder* = Ger. *Natter*, or *aitchbone* (var. *edge-bone*) for *natchbone* (natch = Lat. *nates*) and *orange* for Pers. *nâránj*. On the other hand we say *newt* for *ewt* (= *eft*) and *lute* for Arab. *al-ʿûd*, the lute. *Eke-name*, which appears in German as *Ekelname*, is supposed to be *an added name* (*cf.* ON *aukanafn*, Greek ἐπωνυμία, Ital. *soprannome*, Span. *sobrenombre*) from *eke* = Lat. *augere*, to increase, add (αὐξάνειν). *Eke*, which we have in the phrase *to eke out*, is connected with Ger. *auch*, also, prop. *in addition to*. Ger. *Ekelname* represents a popular etymology, combining *Eke* with *Ekel*, formerly *Eckel*, disgust, which is connected with *heikel*, fastidious. In Uhland's *Metzelsuppenlied* the adjective *ekler* means *fastidious*. The term *Metzelsuppe* does not mean *Wurstsuppe*, as stated in Ludwig Fränkel's edition of Uhland's poems, but *Schweinschlachten* or *Schlachtfest* (cf. JBL 38, 144, n. 5).

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[1] *Cf.* Goethe's *Faust*, l. 4399; also the beginning of the last stanza of Chamisso's poem *Die Sonne bringt es an den Tag* (1827): *Die Raben ziehen krächzend zumal | nach dem Hochgericht, zu halten ihr Mahl.*

But *nickname* is evidently identical with Ger. *Neckname*, quoted in Grimm's *Wörterbuch* (7, 519^a). Ger. *necken*, which was not common before the end of the 18th century, means *to tease*, rally, chaff, banter. The French *nom de nique*, quoted in CD, is not recorded by Littré; he gives only the phrase *faire la nique à quelqu'un* and *nique* as the name of a demon in Normandy (*La mère Nique*). The latter may be the Ger. *Neck* or *Nix*, water-sprite, fem. *Nixe*, water-fay (*cf.* Eng. *nix, nixy, nis*) which is supposed to be connected with *νίζειν*, to wash, bathe. Nor can *Nick* in *Old Nick*, the devil, be a shortened form of St. Nicholas. In the first scene of Wagner's *Rheingold* Alberich calls the Rhine-daughters (EB^{11} 28, 240^b, below) *Nicker*, and at the beginning of the third act of the *Götterdämmerung* Woglinde asks Siegfried: *Hat dich ein Nicker geneckt*, while Siegfried says to the Rhine-daughters: *Euch Neckern geb' ich ihn* (the ring) *nie.*[1] In Cornwall the fishermen say *merry-maids* and *merry-men* instead of *mermaids* (Ger. *Meerweibchen*) and *mermen* (EB^{11} 18, 171^a, n. 1). Sanders says that *neckisch* means *in der Weise eines Necken oder Kobolds* (gnome, goblin). *Kobold* (from which the name *cobalt* is derived, just as *nickel*, which is usually found associated with cobalt, denotes originally a fairy of the mine) is defined as *lustiger Neckegeist* or *neckischer Hausgeist*. In Lichtwer's *Fabeln* (1748) we read: *Der Kobold hübsche Mädchens neckte.*

Littré is inclined to combine the phrase *faire la nique à quelqu'un* = *lui témoigner moquerie et mépris par un certain signe de tête* with Ger. *nicken*, the verb *niquer* meaning *branler la tête.* He might have referred to 2 K 19, 22 = Is. 37, 22; Pss. 22, 7; 44, 14; 109, 25; Job 16, 4; Lam. 2, 15; Sir. 12, 8; 13, 7; Matt. 27, 39; Mark 15, 29, where shaking (wagging, tossing) the head indicates scorn and mockery (EB 1981; DB 2, 316^b; translation of Psalms in Polychrome Bible, p. 171, l. $\overline{3}9$). Also in English, to *nick* had the meaning *to nod*, wink (*to nick with nay*) = Lat. *nictare;* but *nick* in *nickname* must be combined with *nick*, notch, which is identical with *nick*, point (*in the nick of time*). Similarly *nag*, from which the verb *to nag* is derived, denoted a *nick* or notch. Weigand^5 combines Ger. *necken* with *nagen*, to gnaw. To *nick* means *to hit*, and *hit* may denote a stroke of sarcasm, censure, rebuke. In the same way *dig*, thrust, punch, poke, may be used of sarcasm and criticism. We also say *to poke fun* at a person for *to ridicule* him.

Grimm's *Wörterbuch* combines Ger. *necken*, to tease, with *Nacken*, neck; but *necken*, to tease, is identical with *necken*, to smell, to taste: it denoted originally *a pungent* odor or taste, a penetrating scent or flavor. The original form was *ecken* which is connected with *Ecke*, edge, corner. Skeat suggested that *notch* was the OF *oche*, nick, nock, notch. Also *nudge* is not an assibilated form of *knock*, but derived from *edge*, *egg*. The primary connotation is *sharp edge* or *point* (Lat. *acies*, Greek ἀκίς) so that *nickname* would correspond to Ger. *Spitzname*. In Swiss dialects *ack* or *nack* signify a *tang* in food or drink, and *tang* means originally *point* (*cf.* our *pungent, poignant;* Pliny 31, 114 says: *nitrum adulteratum pungit*). The Germans say: *Dieses Bier hat einen Stich* (French *cette bière se pique;* Ital. *questa birra ha la punta*) so that *nick* in *nickname* would correspond to the German *Stichelei* (French *piquerie* and *paroles piquantes;* Ital. *motto pungente*). Ger. *sticheln* is connected with Lat. *instigare* and Greek *stigma*. In certain parts of England *tang* was used of the *sting* of an insect or reptile. *Sting* may denote the mental pain inflicted by a biting or cutting remark or sarcasm.

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[1] *Cf.* also the *Neckereien* of Undine and Kühleborn in Fouqué's *Undine*, especially cc. 7 and 15.

Also French *agacer* (e. g. *agacer*, or *aguicher, un chien*) is derived from Lat. *acuere;* a connection with *agace*, magpie (OHG *agalstra*) or Ger. *hetzen* is impossible. OF *aacier* = *obstupescere* in Jer. 31, 29; Ezek. 18, 2 (*Les pères ont mangé des raisins verts, et les dents des enfants en sont agacées* or *Les pères mangeront des fruits acides, et les enfants en auront les dents agacées* means *to unedge*. LXX has in Jer. αἱμωδιᾶν, and in Ezek. γομφιάζειν (*cf.* Sir. 30, 10). The Hebrew original has *Aḇôṯ aḵĕlû* (Ezek. *i̯ôḵelû*) *ḇosr u̯ĕ-šinnê ḇanîm* (Ez. *hab-banîm*) *tiqhêna*, and *qahâ* undoubtedly means *to be blunt*, dull; *cf.* Eccl. 10, 10 (JBL 36, 86). The Graec. Ven. renders there: ἐὰν ναρκῇ ὁ σίδηρος.

Professor Ember spoke on *The Etymological Equivalent in Egyptian of Hebrew ḥāzè, ‘breast.’*

Hebrew *ḥāzè*, Aramaic *ḥadi̯ā*, Assyrian *irtu* (for **iztu*), ‘breast,’ appears in Arabic in *ḥiḏâ’un*, ‘opposite, over against.’ The semantic development in the Arabic word is: *breast, front, opposite.* Arabic *ḥâḏâ* means ‘to be over against, opposite to.’[1] In Minaean *ḥdi̯t* signifies ‘correspondence.’ I am inclined to believe that the etymological equivalent of the word in Egyptian is found in *ḥzi̯*, ‘to reward, praise’ (originally *to place a thing over against another thing*), also ‘to approach.’ *Ḥzu̯t* means in Egyptian ‘reward, praise.’ Similarly, Arabic *’âzâ*, to face, front, be opposite (*’izâ’un* =

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[1] Professor Blondheim called my attention to Italian *dirimpetto*. Cf. also English *abreast* which in nautical language is used in the sense of ‘opposite.’

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'opposite, in front') is etymologically connected with Egyptian *i̯zu̯*, 'reward, recompense,' and *i̯zi̯*, 'hasten, advance.' For the development in meaning in Egyptian *ḥzi̯* 'to approach' (as well as in *i̯zi̯* 'hasten') cf. Arabic *qadama* 'to approach,' literally 'to front.' Cf. also Arabic *qablu*, 'before,' *qabala*, 'draw near,' *qâbala*, 'to face, be opposite, compensate,' and *'aqbala*, 'to advance.' Also *tau̯aǧǧaha*, 'to advance,' from *u̯aǧhun*, 'face.'

Professor Collitz read a paper on *Three Philological Anniversaries.*

The anniversaries commented upon were those of three works that have played a prominent part in the development of Comparative Indo-European and Comparative Germanic Philology, viz. Franz Bopp's *Über das Conjugationssystem der Sanskritsprache* (Frankfurt a. M., 1816); Rasmus K. Rask's prize essay *Undersögelse om det gamle Nordiske eller Islandske Sprogs Oprindelse* (i. e., "Inquiry into the Origin of the Old Norse or Icelandic Language," Copenhagen, 1818); and the first volume of Jacob Grimm's *Deutsche Grammatik* (Göttingen, 1819).

Professor Blondheim read a paper on *The Origin of Mediæval Bible Translations among the Jews in Romance Countries.*

Agreements in vocabulary and method of translation between the Old Latin translations of the Bible and mediaeval Jewish versions or vocabularies of the Old Testament in French, Spanish, Italian and other Romance tongues were pointed out, and various hypotheses as to the possible cause of these agreements discussed.

CONTENTS

PAGE

The Partitions of the Babylonian Ark. P. HAUPT, - - 27

The Causes of Phonetic Change. H. COLLITZ, - - - 30

The Individuality of Speech. J. W. BRIGHT, - - - 32

Vergil's Apprenticeship. T. FRANK, - - - - - 35

The Hindu Practice of Giving Animals Strong Drink. M. BLOOMFIELD, - - - - - - - - - 36

The Golden Psalms. P. HAUPT, - - - - - - 37

Pisschulle-Pistol(e). W. KURRELMEYER, - - - - 40

L'exotisme sentimental dans la littérature française au dix-neuvième siècle. G. CHINARD, - - - - - 42

Euripides and the Radicals. P. SHOREY, - - - - 43

The *Logos* in Goethe's "Faust." P. HAUPT, - - - - 44

The Linguistic Affinities of Ardhamāgadhī Prākrit. T. MICHELSON, - - - - - - - - - 45

The Word *Logos*. J. E. SNYDER, - - - - - - 45

A Note on Elizabeth and Essex. H. C. LANCASTER, - - 45

The Poems of Habbakuk. P. HAUPT, - - - - - - 46

Rostorf's *Dichter-Garten*. W. KURRELMEYER, - - - 50

The Silver Cord and the Golden Bowl. P. HAUPT, - - 50

Anglo-Saxon *ræfnan*. H. COLLITZ, - - - - - 52

The Language of the Hittites. M. BLOOMFIELD, - - 54

The Holy Sepulcher. P. HAUPT, - - - - - - 58

Gallows and Cross. P. HAUPT, - - - - - - 60

English *nickname* and German *necken*. P. HAUPT, - - 61

The Etymological Equivalent in Egyptian of Hebrew *ḥāzè*. 'breast.' A. EMBER, - - - - - - - 63

Three Philological Anniversaries. H. COLLITZ, - - - 64

The Origin of Mediæval Bible Translations among the Jews in Romance Countries. D. S. BLONDHEIM - - - 64

The Johns Hopkins Press of Baltimore

American Journal of Insanity. E. N. Brush, J. M. Mosher, C. K. Clarke, C. M. Campbell and A. M. Barrett, Editors. Quarterly. 8vo. Volume LXXVI in progress. $5 per volume. (Foreign postage, fifty cents.)

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1921-1922

Baltimore, Maryland
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COLLEGE COURSES FOR TEACHERS

1921-1922

Baltimore
The Johns Hopkins Press
1921

CALENDAR, 1921-1922

College Courses for Teachers begin Monday, October 10, 1921.

Thanksgiving Day falls on Thursday, November 24, 1921. *All classes suspended.*

The Christmas Recess begins Friday morning, December 23, 1921.

Exercises will be resumed Tuesday afternoon, January 3, 1922.

College Courses for Teachers Mid-year Examinations begin February 2, 1922.

Commemoration Day will be observed Wednesday, February 22, 1922. *All classes suspended.*

The Spring Recess begins Thursday morning, April 13, and closes Wednesday evening, April 20, 1922.

College Courses for Teachers close Saturday, June 3, 1922.

REGISTRATION

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up by those *not previously registered* and returned to the Director on or before October 1, 1921. Registration of former students should be made on or before October 1.

For the new regulations concerning registration, privilege of late registration, payment of fees, and admission to classes, see expenses, pages 11-12.

The Director's office, Room 217, Gilman Hall, Homewood, will be open daily from September 19 to October 1 (3-5 p. m., Monday to Friday; 10 a. m. to 12 m. Saturday).

INSTRUCTORS

Paul Haupt, Ph. D. W. W. Spence Professor of the Semitic Languages.	*Biblical Literature*
James W. Bright, Ph. D. Caroline Donovan Professor of English Literature.	*Anglo-Saxon*
Lorrain S. Hulburt, Ph. D. Collegiate Professor of Mathematics.	*Mathematics*
Wilfred P. Mustard, Ph. D. Professor of Latin.	*Latin*
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Raymond P. Dougherty, Ph. D. Professor of Biblical Literature, Goucher College.	*Old Testament Literature*
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Ernest P. Kuhl, Ph. D. Professor of English, Goucher College.	*English*
A. Irene Miller, A. M. Assistant Professor of English, Goucher College.	*English*

GENERAL STATEMENT

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work was done without any reference to credit toward an academic degree.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with Goucher College, has offered since 1909 courses of instruction to teachers and others whose vocations prevent their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1921-1922. It is the primary aim of these courses to provide teachers in public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in the academic department. In order to give further encouragement to teachers in service and others to carry on extended systematic study, this plan of instruction also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degree of Bachelor of Art and Bachelor of Science.

Persons other than teachers will, as in the past, be admitted to these courses. They will be expected to present the proper qualifications for the subjects and courses they desire to pursue.

ADMISSION

The preparatory training desirable for the successful pursuit of these courses is that represented by the completion of a standard four-year high school course. In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course. Persons may be admitted to the courses either with or without reference to the baccalaureate degree.

THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered by the Johns Hopkins University to both men and women completing the required course of study in the College Courses for Teachers and in the Summer Courses, in accordance with the following regulations:

Those who wish to become candidates for the degree of Bachelor of Science must present evidence of having successfully completed courses of study equivalent to the graduating requirements of a standard four-year high school. This evidence may be offered by either of the following means:

1. Presenting certificates:
   - (a) Of graduation from a secondary school having a course of study of four years, and approved by the Committee on Matriculation.
   - (b) Of the College Entrance Examination Board, or other approved examining boards.

2. Passing an examination.

Fifteen units of secondary instruction are required for matriculation, of which nine are prescribed and six are elective. The subjects in which the prescribed units must be offered are:

> English (*three, requiring four years*), History (*one*), Mathematics (Algebra and Geometry) (*two*), a Modern Foreign Language (*two*), Science (*one*).

The remaining six units may be offered by election from the following group, the number of additional units accepted in the several prescribed subjects being indicated in parentheses:

> Domestic Science (*one*) or Manual Training (*one*), Drawing (*one*), History (*one*, or *two*), Latin (*two*, or *three*, or *four*), Mathematics (*one*, or *one and a half*), Modern Foreign Language (*two*, or *three*, or *four*), Music (*one*, or *two*), Science (*one*, or *two*), Book-keeping (*one*), Commercial Arithmetic (*one*), Commercial Geography (*one*), Commercial Law (*one*),

Advanced standing may be granted to applicants who offer approved collegiate or professional courses in a college, scientific school, normal school, training school, or technical school in advance of high school graduation.

The course of study enabling the candidate to meet the graduation requirements is made flexible so as to permit a choice of courses in various subjects, within limits, in accordance with the future work of the student.

The requirements are:

1. A series of subjects required of all matriculated students, namely:

> English, two courses; Foreign Languages, three courses in at least two languages; History, one course; Science, one course.

2. A major consisting of three courses in one subject and of two courses in one or two cognate subjects. Required courses may not be counted as part of the work in the major.

3. Electives sufficient to complete the requirement of one hundred and twenty points.

All candidates for the degree must complete a minimum of twenty-four points in the College Courses for Teachers. The maximum credit allowed a student in one summer session is eight points.

By a plan of co-operation with the Maryland Institute of Baltimore, provision has been made whereby candidates for the degree who desire to offer a major in art may do so by completing the following courses:

I. Drawing: Freehand drawing, first year, 6 hours; drawing from the antique, second year, 6 hours; still-life and portrait drawing, third year, 6 or 9 hours; life drawing, fourth year, 6 or 9 hours.

II. Cognate courses: Design, 6 hours, and history of art, 2 hours. The first-year drawing may, and the history of art must, be taken at the University. The maximum amount of credit allowed for drawing is seventeen points.

The Maryland Institute is also announcing a special Normal Art Course for the training of teachers and supervisors of art in public schools. Certain courses in education at the University form a part of this special course.

Similar provision has been made, in co-operation with the Peabody Conservatory of Music, of Baltimore, whereby candidates for the degree who desire to offer a major in music may do so by completing at the Conservatory the following regular courses:

Musical literature, history of music, musical pedagogy, normal class, harmony and harmonic analysis, ear training, and at least one main branch, as piano, organ, violin, 'cello, voice, harmony, or school music. The maximum amount of credit allowed for a major in music is twenty-three points. Candidates completing a major in music may offer more than one main branch.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. In the case of women who may desire to become candidates for the degree of Bachelor of Arts, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the academic department of the Johns Hopkins University in the case of those men who desire to proceed to the degree of Bachelor of Arts.

THE DEGREE OF BACHELOR OF ARTS

Those who wish to become candidates for the degree of Bachelor of Arts in this University are referred to the circular descriptive of The College of Arts and Sciences of the Johns Hopkins University, 1921, for a detailed statement of the requirements for matriculation.

Those who desire to become candidates for the same degree in Goucher College are referred to the Announcements for 1921-22, for a detailed statement of the corresponding requirements in that institution.

As a final requirement before this degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree is conferred by the University upon men only.

EXPENSES

The charge for instruction is twelve dollars a year for each hour per week. Each course will continue throughout the academic year, except as otherwise stated. Where laboratory fees are required they are additional. From two to three hours of laboratory work will be charged as one hour of recitation or lecture.

Students in all other divisions of the University, paying full tuition or on scholarship appointment, are permitted to register in any courses given in the College Courses for Teachers without payment of additional fees, except the regular laboratory fees.

Students are required to complete registration, which includes the payment of fees, before being admitted to classes. Before payment of fees can be made, a card stating the courses to be taken, must be received from the office of the Director.

Fees are payable in advance in semi-annual installments at the office of the Treasurer, as follows: on or before October 16th, for the first half-year, seven dollars per hour; on or before February 5, for the second half-year, five dollars per hour; students registering February 1 for the second half-year only, on or before February 5, six dollars per hour. Students deferring the completion of registration until *after October 16* for the first half-year, and *after February 5* for the second half-year, will be subject to a fee of three dollars for the privilege of late registration.

The fee for matriculation as a candidate for the degree of Bachelor of Science is $5. The fee for graduation is $5, payable before the delivery of the diploma. The fee for a duplicate copy of a student's record is $1, payable in advance.

JUMBLE-INN SCHOLARSHIPS

The Jumble-Inn Scholarships were established in 1920 by the gift of a fund to the University from the Jumble-Inn Committee, Mrs. Sumner A. Parker, Mrs. Walter Wickes, Mrs. W. W. Keith, Mrs. James H. Preston, Mrs. Julian Ridgeley, Mrs. William McMillan, and Miss Sarah Fischer. The income of the fund only is to be used for the benefit of women teaching in the elementary public schools of Baltimore who are residents of the city, and who are pursuing instruction in the College Courses for Teachers as candidates for the degree of Bachelor of Science. Preference in every award is to be given to those in need of financial assistance in completing a college course. Application should be made to the President of the University.

SESSION

Instruction will begin Monday, October 10, 1921, and close on Saturday, June 3, 1922. Each course will include instruction for thirty-two weeks, except as otherwise noted. Classroom and laboratory exercises will be given in the afternoon and evening from Monday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual University recesses at Thanksgiving, Christmas, and Easter.

SCHEDULE OF HOURS

Classes will be held in the University buildings at Homewood and in certain public school buildings in the city. The complete schedule of hours can not be arranged prior to the opening of the courses on October 10. In addition to the usual afternoon and Saturday forenoon schedule, a number of classes will be held in the evenings at 8 o'clock, usually two hours in one session. Changes in the hours indicated may be made at the opening in order to meet the convenience of students. Where days and hours are omitted, the convenience of students will also be considered in arranging the schedule.

UNIVERSITY EXTENSION CENTERS

Under a regulation adopted by the Advisory Committee on the degree of Bachelor of Science in September, 1917, non-laboratory courses announced in the program, for which arrangements for instruction can be made, may be conducted at centers throughout the State of Maryland. The satisfactory completion of courses so conducted will be credited towards the degree of Bachelor of Science, and, also, will be accepted by the State Superintendent of Schools towards the renewal, or advancing the grade, of teachers' certificates.

The general conditions, under which classes will be organized at University Extension Centers, call for a minimum registration of twenty students, and provision by the local class of the place of meeting and the incidental expenses of the visiting instructor. Class exercises are to be held weekly during the regular session, from October to June. The conditions of admission and tuition expenses are described on pages 8 and 11.

Since the adoption of the regulation, courses in Education have been conducted for both secondary and elementary public school teachers at Salisbury, Frederick, Elkton, Rising Sun, Havre de Grace, and Rockville. County Superintendents of Schools and others interested in the organization of classes at University Extension Centers should communicate with the Director of the College Courses for Teachers.

The Board of School Commissioners of Baltimore having extended the privilege of using certain of the public school buildings for classes in the College Courses for Teachers, the University will, within the limits of the schedule of the members of the Faculty, undertake the organization of classes to meet at convenient centers which may be available in parts of the city remote from Homewood.

COURSES OF INSTRUCTION

Any course for which there are fewer than twelve applicants may be withdrawn. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of, or other than, those mentioned below, an effort will be made to arrange for such instruction.

The exact amount of credit towards the baccalaureate degrees, which will be allowed for the successful completion of each of the following courses, can be determined definitely only at the end of the year.

ART

1. History of Art.

(a) Ancient Art.

A general outline of ancient architecture, sculpture, and painting with some attention to the minor arts and to drawing as seen on vases. The development of the different branches of ancient art from prehistoric times will be systematically considered and their influence on later art emphasized. Lectures illustrated by slides, photographs, casts and original antiquities. Reports and required reading for credit. Books recommended: Reinach's Apollo (Scribner's Sons, New York, 1909, $1.50); Fowler-Wheeler, Greek Archaeology (New York, 1909, $2.00).

(b) Mediaeval and Modern Art.

History of the development of Mediaeval, Renaissance, and Modern Architecture, Sculpture and Painting. Lectures, recitations, reports on assigned topics. Text book: Reinach's Apollo.

Professor ROBINSON. Tuesday, 8-9.45 p. m.

The course on the History of Art must be offered as part of the requirement of the major in art.

2. The History of Greek and Roman Sculpture.

Lectures on the history of Greek sculpture, with an outline of Roman sculpture, having especial reference to Roman busts and historical reliefs.

Professor ROBINSON. Monday, 5 p. m.

3. The Private Life of the Greeks.

Illustrated by Greek literature and monuments.

Professor ROBINSON. Tuesday, 2 p. m.

4. The Private Life of the Romans.

Associate Professor MAGOFFIN. Tuesday, 3 p. m.

CHEMISTRY

1. General Inorganic Chemistry.

No previous knowledge of chemistry is required. The work covers the general principles and laws of chemistry and a study of the more important metallic and non-metallic elements. In the laboratory selected experiments, illustrating the preparation, properties and reactions of inorganic substances and the applications of chemical laws, are performed.

Professor GILPIN, Dr. WHITNER and Mr. BEARD. Lecture, Monday, 8-9.45 p. m.; and laboratory, 7.30-10 p. m., Tuesday or Friday, or Saturday, 9 a. m.-12 m.

2. Qualitative and Quantitative Analysis.

This course will include chiefly laboratory exercises, with two sessions each week. Occasionally a part or all of an evening will be devoted to a discussion of the theoretical principles of the reactions being studied. As the laboratory work is of an individual character, an effort will be made to meet the needs of each student in the kind of work assigned. Practice will be given in the methods of gravimetric and volumetric quantitative analysis.

Dr. WHITNER and Mr. BEARD. 7.30-10 p. m., Tuesday and Friday.

3. General Organic Chemistry.

A systematic course in the general principles of organic chemistry and the properties and reactions of the paraffin and benzene derivatives. It will consist of one lecture (two hours) and one laboratory period each week. The course will be so arranged as to meet the needs of those preparing for the Medical School, the School of Hygiene, or advanced work in Domestic Science.

Prerequisite: Chemistry 1.

Professor GILPIN, Dr. WHITNER and Mr. BEARD. Lecture, Thursday, 8-9.45 p. m., and laboratory, 7.30-10 p. m., Tuesday or Friday, or Saturday, 9 a. m.-12 m.

Laboratory fee: $15.00 for each course, in addition to breakage.

CHINESE

This course for beginners provides instruction in spoken Chinese, and in writing characters and composing sentences in Chinese.

Mr. CHEN. Friday, 4-6 p. m.

DRAWING

The instruction in this course in freehand drawing aims to impart such knowledge of the principles of drawing as shall give students the ability to represent natural objects correctly.

This course may be offered as the first-year requirement of the major in art.

Mr. WHITEMAN. Six hours weekly. Monday, Tuesday, Wednesday, Thursday, 2-5 p. m.

EDUCATION

1. History of Education.

The course presents in outline the history of Education, tracing the development of those ideas, practices and institutions of the past which have been most effective in determining the essential features and problems of education in the present. The work is based on Cubberley's "The History of Education" and "Readings in the History of Education."

Professor BUCHNER. Monday and Wednesday, 5.10 p. m.

2. Principles of Education.

This course on the principles of Education undertakes a study of education with a view to understanding the work of the school and the mental and social factors in individual development.

Professor Buchner. Tuesday, 4.20-6 p. m.

3. Educational Psychology.

(a) During the first half-year the following topics are considered: The laws of learning and their application to elementary and secondary school instruction; work; fatigue; practice; individual differences.

(b) The second half-year is devoted to mental development of school children, and includes such topics as psychological characteristics of children at different ages, growth curves of intelligence; adolescence.

Mr. Brooks. Thursday, 4.10-6 p. m.

4. Educational Psychology: Elementary School Subjects.

Analysis of the learning processes with special reference to reading and arithmetic, some attention being given to handwriting, drawing, language, composition and the social studies.

Note.—Education 4 is the first half of a full-year course, which includes Education 4 and 6.

Mr. Brooks. First half-year. Monday and Wednesday, 4.10 p. m.

5. Educational Measurements.

(a) Collection and Interpretation of Educational Data.

This course deals with the principles and technique fundamental to scientific experimentation in education and to the interpretation of experimental data. Practice in the necessary statistical procedures. Text-book: Thorndike, "Mental and Social Measurements."

(b) Intelligence of School Children.

Principles and technique of rating the intelligence of school children; the development and forms of intelligence tests, both individual and group; statistical evaluation and graphical presentation of data; interpretation and application of results with special reference to the classification and instruction of children.

Mr. Brooks. Friday, 4.10-6 p. m.

6. Educational Measurements: Tests of Elementary School Subjects.

A study and evaluation of the more useful scales and tests suitable for use in the elementary school.

Note.—See Education 4, note.

Mr. Brooks. Second half-year. Monday and Wednesday, 4.10 p. m.

7. Principles of Teaching and Special Methods in Secondary School Subjects.

The first part of this course presents the principles underlying the method of instruction and class-room management, and includes such topics as habit formation, the laws of learning, and the nature of the thinking process.

During the second part of the course application of these principles is made to the problems of teaching the subjects in secondary courses of study.

Professor Buchner. Monday and Wednesday, 4.10 p. m.

8. Secondary School Organization and Class-Room Management.

This course deals with some of the principal topics related to the organization and administration of secondary schools, such as: The historical development and function of the American high school; comparisons with secondary schools in other countries; the main problems connected with the program of studies; the junior high school; extra class-room activities; supervised study; methods of instruction.

Reports and discussion of observation of class-room and other secondary school activities.

Dr. Weglein. Thursday, 4.10-6 p. m.

9. The Junior High School.

The reorganization of education, historical survey of the junior high school, articulation of junior high schools with elementary schools and with senior high schools, provision for individual differences, programs of study, problems of administration and supervision.

Dr. Weglein. Monday, 4.10-6 p. m. Western High School, Room 103.

10. The Teaching of French in Secondary Schools.

(a) First half-year: History of modern language teaching in the United States; methods and aims in the teaching of French; examination of modern language periodicals, French text-books and dictionaries; methods and aims in editing French text-books.

(b) Second half-year: Phonetics and Modern French Pronunciation. Theory and practice. Text: Nyrop, *Manuel phonétique du français parlé* (Stechert).

Mr. RIDDLE. Two hours a week.

11. Elementary Education.

This course is intended to give teachers an insight into the scientific procedure in elementary education. It will study the learning process in relation to specific needs of pupils in the fundamental subjects of the curriculum. It is intended to aid teachers in the analysis of those specific habits in the control of which it is necessary for children to attain skill; the fundamental processes in arithmetic; reasoning problems in arithmetic; language; silent and oral reading; spelling; handwriting.

There will be written reports based on assigned readings. One report will be required from each student based upon a careful study of the effect of scientific procedure upon one individual child.

This course is intended for teachers in the first six grades of the elementary school.

Associate Professor BAMBERGER. Saturday, 9.15-11 a. m.

12. The Individual in Relation to Classroom Organization and Management.

Aim: to furnish records for a teacher's class which might serve as a relatively thorough diagnosis of each individual child from the point of view of standard scores, so that on the basis of this data remedial measures might be applied.

There will be assigned readings and written reports. Each student will be expected to give four standard tests to her class, and to use the results of these for analysis and study. Each student will be responsible for case study of two individuals. Careful testing will be followed by graded remedial measures and accurate records of growth and progress will be kept throughout the year.

This course is designed for experienced teachers in the elementary grades, for practice teachers and for supervising principals.

Associate Professor BAMBERGER. Saturday, 11.15 a. m.-1 p. m.

13. Special Problems in Classroom Leadership.

This course is intended for advanced students and experienced teachers who are interested in the special problems which arise in the leadership of children. Solutions of these problems along lines of pupil participation in school activities will be attempted. For this purpose the class will be organized in groups meeting on alternate weeks for laboratory exercises. Each student will choose the group in which he wishes to work and each group will elect one or more specific topics for intensive study. The field of activity will be limited to the elementary grades. Observation and demonstration lessons illustrating various phases of the topics selected will be given for the entire class from to time.

The selection of the topics will necessarily await the initiative of the members enrolled, but opportunity will be afforded to any desirous of investigating the following topics: the relation of the learning process to silent reading in the first and second grades; individual growth in relation to supervised study; group co-operation in relation to supervised study; care of the gifted child; learning through projects; literature in relation to child interests. Students will provide all test material.

This course is intended for experienced teachers who desire to investigate and experiment in their particular fields, for critic teachers, for teachers of method in normal and training schools, and for supervising principals.

Associate Professor Bamberger. Tuesday, 4-5.45 p. m.

14. Experimental Education.

This course deals with educational measurements and tests and includes a comparative study of investigations in educational research. Attention is given to methods of attacking educational problems in the fields of standardized scales and surveys of pupil achievements in school subjects and of rating the intelligence of school children, with special reference to the application of results to the control of instruction and the organization of schools. Research will be undertaken in problems in either elementary or secondary education selected according to the chief interests of individual students.

Professor Buchner and Mr. Brooks. Saturday, 11.15 a. m.-1 p. m.

ENGLISH

1. English Composition.

This course will include a review of the essentials of usage, the study of the principles of structure and style, and frequent practice in writing. Weekly themes will be required; these will be returned with written criticism.

Dr. LITZ. Tuesday and Thursday, 5.10 p. m.

2. American Literature.

(a) During the first half-year American narrative and lyric verse studied with particular reference to the significance of literary types.

(b) During the second half-year, a similar study of American prose, including the essay, the novel, and the short story.

Throughout the course literary history and biography will be dealt with incidentally. Opportunity for critical writing will be provided.

Associate Professor FRENCH. Monday and Wednesday, 5.10 p. m.

3. The History of the English Novel.

The development of English fiction from the middle ages to the close of the nineteenth century, with a cursory view of the more important English novelists of the present day. Attention will be given to the influence of foreign fiction on the shaping of the English novel, particularly French, Spanish and Italian. The first semester will be devoted chiefly to a consideration of the growth of fictional types; the second, to a study of the technique of the novel in the nineteenth century and after.

Professor HOPKINS. Tuesday and Thursday, 4.10 p. m.

4. Shakespeare.

An intensive study of five of Shakespeare's plays, namely: Twelfth Night, Hamlet, Henry V, King Lear and Cymbeline. Students will also be assigned outside reading in Shakespeare and contemporaries. Lectures will be given on the Renaissance.

Professor KUHL. Monday, 8-9.45 p. m.

5. Modern Drama.

(a) First half-year: A study of the principles of the drama as an art form, including the significance of action and emotion, the fitting of plot to subject, characterization through action and dialogue, the differentiation of tragedy, comedy, melodrama, farce, the method of the one-act play. A few representative plays will be carefully studied as illustrative material and will be used as a basis for the discussion of how to read and how to judge a contemporary drama. Those interested in play-writing will be given an opportunity to try the adaptation of a short story or an original one-act play. Other members of the class will be expected to make a careful study of a dramatist or of a special problem.

(b) Second half-year: A study of the more important figures of the British and American drama during the revival of the last thirty years, among them Barrie, Shaw, Galsworthy, Masefield, Barker, Lady Gregory, Yeats, Synge, Dunsany, Clyde Fitch, Moody, with an account of the more important "little theaters" and their innovations in technique and methods of production. Further practice in play construction or in dramatic criticism.

Assistant Professor MILLER. Monday, 8-9.45 p. m.

6. Anglo-Saxon.

An introductory course, offered in the English Seminary, with lectures on the Germanic and Indogermanic relationship of the language.

Professor BRIGHT. Friday, 3-5 p. m.

FRENCH

1. French Elements.

This course is planned for students beginning the study of French and aims to impart a good reading knowledge of the language. It includes grammar, pronunciation, composition, and translation. Upon the successful completion of the course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in French.

Mr. MERRILL. Tuesday and Thursday, 4.30-6 p. m.

2. French Elements.

In case of sufficient demand, a night class similar to French I, or in advance thereof, will be organized.

Mr. MERRILL. Tuesday and Thursday, 8-9.30 p. m.

3. French Reading.

A course in French reading, grammar, and composition, for students who have had the equivalent of Course 1. The texts will be chosen from modern authors, and the exercises in composition will be of a practical nature.

Mr. Riddle. Tuesday, 4.10-5.50 p. m.

4. French Elements.

This course is planned for students beginning the study of French. It includes grammar, pronunciation, composition, and translation.

Dr. Dulac. Monday, 4.10-6 p. m. Western High School, Room 101.

5. Intermediate French.

This course provides for a continuation of grammar, pronunciation, composition, translation, and conversation based on reading and current expressions and idioms.

Dr. Dulac. Thursday, 4.10-6 p. m. Western High School, Room 101.

6. Advanced French.

This course is planned for those students who have completed, or have had the equivalent of, French 4 and 5.

Dr. Dulac. Two hours a week. Western High School.

7. Practical French.

Practical exercises in spoken French. The nature of this course will depend upon the previous training of those who wish to follow it. It is intended, however, primarily for those who desire to increase their knowledge of practical modern French.

Mr. Riddle. Wednesday, 4.10-5.50 p. m.

The following graduate courses are open to those with adequate preparation, the hours to be arranged on Saturday or an afternoon:

8. Flaubert and his Successors.

Professor Chinard. One hour a week.

9. *Explication de textes: Lamartine.*

Lectures on non-dramatic authors and assigned readings.

Professor CHINARD. One hour a week.

10. The Seventeenth Century.

Professor LANCASTER. One hour a week.

GERMAN

1. German Elements.

This course is adapted to those who wish to begin the study of German or who have had a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation, and composition. Upon the successful completion of the work, the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in German.

Associate Professor ROULSTON. Three hours a week.

2. *A.* German Reading.

Modern prose readings with exercises in prose composition. Such writers as Storm, Sudermann, C. F. Meyer, Arnold, Schurz, etc., will be read. This course corresponds to collegiate German 1, and, if satisfactorily completed, will be credited accordingly. The two hours of literature and the one hour of composition may be taken jointly or separately.

Associate Professor ROULSTON. Three hours a week.

Or,

B. German Literature.

1. Conrad Ferdinand Meyer.
October to February 15.
2. Gottfried Keller.
February 15 to the end of the year.

Associate Professor ROULSTON. Two hours a week.

HISTORY

1. *A.* Recent United States History.

This course covers the period from the Civil War to the present. It supplements by means of a more detailed study the survey course of United States history from 1783-1883. Especial emphasis is laid upon economic developments and their bearing upon domestic politics. The evolution of the foreign policy of the United States is traced in detail.

Or,

B. History of the United States, 1783-1883.

A survey of the political, social and economic history of the United States during the first century of national development. A syllabus will be provided and no single text-book will be used.

Professor GALLAGHER. Monday, 8-9.45 p. m.

2. *A*. Contemporary European History.

This course is a general survey of European history in the nineteenth and twentieth centuries. Special emphasis is placed upon the expansion of Europe into Asia and Africa and the course of international politics leading up to the great war of 1914. The course closes with a study of the Peace Settlement of 1919.

Or,

B. British Empire Since 1815.

This course will take up the history of the British Empire as distinct from the history of England. Particular attention will be given to the interests of India, Canada, Australia, New Zealand and South Africa. The recent nationalistic movements in Egypt and India will be considered, and the place of the British Empire as a world power by the terms of the treaties of 1919-1920.

Professor GALLAGHER. Thursday, 4.10-6 p. m. Western High School, Room 103.

HYGIENE

The course in hygiene will consist of lectures and demonstrations (*October* to *March*). Attention will be given to the principles of bacteriology as applied to sanitation and the prevention of disease, and the principles of physiology as applied to personal hygiene, nutrition, and the control of the physical environment in regard to ventilation and illumination.

Associate Professor FORD and Assistants. Tuesday and Thursday, 4 p. m., School of Hygiene and Public Health, 312 West Monument Street.

Tuition fee: $16.00.

ITALIAN

1. Italian Elements.

The object of this course for beginners will be to acquire a reading knowledge of modern Italian and correct pronunciation. Prose composition will begin as soon as the most elementary part of the grammar has been mastered. The following text-books will be used: Phelps, *Italian Grammar;* Bowen, *Italian Reader;* Collodi, *Le Avventure di Pinocchio.*

Dr. GRUENBAUM. Wednesday, 4.10-5.50 p. m.

2. Italian Reading.

Selections from classical authors. Italian composition. History of Italian literature.

Dr. GRUENBAUM. Three hours a week.

JOURNALISM

The Principles and Practice of Journalism.

This course of lectures on journalism and practical exercises in newspaper work includes discussions of the journalistic styles, news stories, the reporter and his work, the departments of a modern newspaper, and the technical processes of publication.

The course is given in co-operation with *The Sun,* Baltimore. Students are offered an opportunity to study the making of a newspaper in practice, to use the plant of *The Sun* as a laboratory for such study, and to write under the direction and criticism of a member of its editorial staff.

Mr. PORTER. Wednesday, 8-9.45 p. m.

LATIN

1. Classical Literature.

A series of lectures on great representative authors of classical literature from Homer to the Second Century A. D. Special attention will be given to certain aspects of formal and artistic development and to the growth and influence of literary tradition.

The course will require the reading in translation of the authors studied. A previous knowledge of Greek and Latin is desirable, but not essential.

Professor MUSTARD. One or two hours a week, 5 p. m.

2. Latin Comedy.

The Seminary in Plautus and Terence is open to teachers and others with adequate preparation.

Professor FRANK. Thursday, 4-6 p. m.

MATHEMATICS

1. Trigonometry and Analytic Geometry.

Pre-requisites: Plane Geometry and Algebra.

Professor HULBURT and Assistants. Three hours a week.

2. *A.* Advanced Algebra.
Or,
B. Differential and Integral Calculus.

Associate Professor MURNAGHAN. Friday, 4.10-6 p. m.

ORIENTAL SEMINARY

The following courses in oriental history, literature, and archaeology, offered in the Oriental Seminary, presuppose no knowledge of the Hebrew or Greek languages:

1. History of the Ancient East (Egypt, Babylonia, Assyria, Persia, Israel and Judah).

Dr. BLAKE. Friday, 5 p. m.

2. Biblical Archaeology (Egypt, Babylonia, Palestine).

Professor DOUGHERTY. Wednesday, 5 p. m.

3. The Literature of the Old Testament (with special reference to date and authorship).

Dr. ROSENAU. Thursday, 5 p. m.

4. Interpretation of Selected Chapters of the Authorized Version.

Professor HAUPT. Monday, 5 p. m.

PHILOSOPHY

1. History of Modern Philosophy.

The philosophical doctrines and intellectual fashions of Western Europe since the Renaissance.

Mr. HAMMOND. Thursday, 8-9.45 p. m.

2. Ethics.

Individual morality and happiness: an inquiry concerning the province of moral value, the meaning of good and its recognition, the relation of ethics to religion and to politics; and, a discussion of the classical doctrines of happiness. The expression of ethical ideas in literature will be considered illustratively.

Mr. HAMMOND. Monday, 8-9.45 p. m.

POLITICS

The course in Political Science includes two half-year units of study.

(a) During the first half-year this course includes a study of American State and Local Government: the position of the States in the American constitutional system and the organization of their governments; recent governmental developments, such as the increased power of the state governor and administrative reform; the various types of local government and municipal problems.

(b) During the second half-year American National Government is studied, emphasis being placed on the fundamental principles of constitutional organization and on the actual operation of government as affected by such factors as the party system. Contemporary problems and events will receive attention.

Mr. THACH. Wednesday and Friday, 4.10 p. m.

PSYCHOLOGY

1. Introduction to Scientific Psychology.

A study of the human mind in relation to the activities of the organism. Special attention will be given to the neural basis of consciousness, the development of perception, habit-formation, instinct, emotion, and will.

Associate Professor JOHNSON. Tuesday, 4.10-5.50 p. m.

2. Social Psychology.

The course undertakes a survey of the psychological factors involved in social relations. Such topics are considered as the primary instincts and emotions, imitation and suggestion, efficiency and its evaluation, the family group, and the social function of religion.

The course will be given only for a minimum registration of fifteen.

Professor DUNLAP. Tuesday, 8-9.45 p. m.

3. Problems in Social Psychology.

Reports and discussions of selected topics chosen by the members of the class. The course is open only to students who have satisfactorily completed Psychology 2.

Professor DUNLAP. Hours to be arranged.

RUSSIAN

1. Russian Language.

This course will include instruction in elementary grammar, colloquial and written Russian. Practical exercises will be based on standard prose works.

Mr. BREIT. Friday, 8-9.45 p. m.

2. Russian Civilization and Literature.

(a) The first half-year is devoted to a study of the historical development of Russian culture in its educational, economic, ethical and intellectual aspects from the beginning of Russia as a national entity to the present time.

(b) The second half-year offers a survey of Russian literature in its historical development from the period of the oral ballads and lyrics to present-day writers, special attention being given to the classical writers.

This course does not require a knowledge of the Russian language.

Mr. BREIT. Wednesday, 4.10-5.50 p. m.

SPANISH

1. Spanish Elements.

A course intended for beginners. Upon successful completion of this course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in Spanish.

Mr. Merrill. Wednesday and Friday, 4.10 p. m.

2. Practical Spanish.

A practical course in Spanish for those who have had the elements of the language, and who desire to gain a broader knowledge of the literature, together with facility in speaking and writing Spanish.

——————. Wednesday and Friday, 5.10 p. m.

3. Spanish Literature.

Explanation of the texts of classical Spanish authors. Menéndez Pidal, *Antologia de prosistas castellanos.*

Mr. Robles. Monday, 4.10-5.50 p. m.

Attendants on the College Courses for Teachers, 1920-1921, 759.

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COLLEGE COURSES FOR TEACHERS

1922-1923

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COLLEGE COURSES FOR TEACHERS

1922-1923

BALTIMORE
THE JOHNS HOPKINS PRESS
1922

CALENDAR, 1922-1923

College Courses for Teachers begin Monday, October 9, 1922.

Thanksgiving Day falls on Thursday, November 30, 1922. *All classes suspended.*

The Christmas Recess begins Saturday morning, December 23, 1922.

Exercises will be resumed Tuesday afternoon, January 2, 1923.

College Courses for Teachers Mid-year Examinations begin January 29, 1923.

Commemoration Day will be observed Thursday, February 22, 1923. *All classes suspended.*

The Spring Recess begins Thursday morning, March 29, and closes Wednesday evening, April 4, 1923.

College Courses for Teachers close Saturday, June 2, 1923.

REGISTRATION

Blank forms of application for admission to these courses may be obtained from the Registrar of the Johns Hopkins University, and are to be filled up by those *not previously registered* and returned to the Director on or before September 30, 1922. Registration of former students should be made on or before September 30.

For the new regulations concerning registration, privilege of late registration, payment of fees, and admission to classes, see expenses, page 10.

The Director's office, Room 217, Gilman Hall, Homewood, will be open daily from September 18 to 30 (3-5 p. m., Monday to Friday; 10 a. m. to 12 m. Saturday).

INSTRUCTORS

Paul Haupt, Ph. D. W. W. Spence Professor of the Semitic Languages.	*Biblical Literature*
James W. Bright, Ph. D. Caroline Donovan Professor of English Literature.	*Anglo-Saxon*
Lorrain S. Hulburt, Ph. D. Collegiate Professor of Mathematics.	*Mathematics*
Hermann Collitz, Ph. D. Professor of Germanic Philology.	*German*
Edward F. Buchner, Ph. D. Director of the College Courses for Teachers; Professor of Education.	*Education*
David M. Robinson, Ph. D. W. H. C. Vickers Professor of Archaeology.	*Art*
J. Elliott Gilpin, Ph. D. Collegiate Professor of Chemistry.	*Chemistry*
Knight Dunlap, Ph. D. Professor of Experimental Psychology.	*Psychology*
Gilbert Chinard, L. ès L. Professor of French.	*French*
H. Carrington Lancaster, Ph. D. Professor of French Literature.	*French*
William W. Ford, M. D., D. P. H. Associate Professor of Bacteriology.	*Hygiene*
John C. French, Ph. D. Associate Professor of English.	*English*
Ralph V. D. Magoffin, Ph. D. Associate Professor of Greek and Roman History.	*Art and History*
Robert B. Roulston, Ph. D. Associate Professor of German.	*German*
Florence E. Bamberger, Ph. D. Associate Professor of Education.	*Education*
Buford Jennette Johnson, Ph. D. Associate Professor of Psychology.	*Psychology*
Francis D. Murnaghan, Ph. D. Associate Professor of Applied Mathematics.	*Mathematics*
William Rosenau, Ph. D. Associate in Post-Biblical Hebrew.	*Old Testament Literature*
Frank R. Blake, Ph. D. Associate in Oriental Languages.	*Ancient History*
Gustav Gruenbaum, Ph. D. Associate in Romance Languages.	*Italian*
Fowler D. Brooks, Ph. D. Associate in Education.	*Education*
David E. Weglein, Ph. D. Associate in Education.	*Education*

José Robles y Pazos Associate in Spanish.	*Spanish*
S. Edwin Whiteman Instructor in Drawing.	*Drawing*
Lawrence H. Baker, Ph. D. Instructor in Greek.	*Greek*
Francis E. A. Litz, Ph. D. Instructor in English.	*English*
Schachne Isaacs, A. M. Instructor in Psychology.	*Psychology*
Thomas C. Whitner, Jr., Ph. D. Instructor in Chemistry.	*Chemistry*
Leslie C. Beard, Jr., Ph. D. Instructor in Chemistry.	*Chemistry*
Herbert E. Cory, Ph. D. Lecturer in Philosophy.	*Aesthetics*
Alfred Breit	*Russian*
Chao Ming Chen, A. B.	*Chinese*
John J. Davis, S. B.	*French*
Carleton E. Douglass, A. M. Assistant Superintendent, Public Schools, Baltimore.	*Education*
Victor Dulac, Ph. D.	*French*
Albert L. Hammond, A. B.	*Philosophy*
Leslie H. Ingham, Ph. D. Head of Department of Science, Baltimore City College.	*Education*
G. Ellis Porter, A. B. Editorial Staff, *The Evening Sun,* Baltimore.	*Journalism*
Frances Zuill, A. M. Supervisor of Home Economics, Public Schools, Baltimore.	*Home Economics*
Wilfred A. Beardsley, Ph. D. Professor of Romance Languages, Goucher College.	*Spanish*
Niels H. Debel, Ph. D. Professor of Political Science, Goucher College.	*Political Science*
Raymond P. Dougherty, Ph. D. Professor of Biblical Literature, Goucher College.	*Old Testament Literature*
Katherine J. Gallagher, Ph. D. Professor of History, Goucher College.	*History*
Annette B. Hopkins, Ph. D. Professor of English, Goucher College.	*English*
Ernest P. Kuhl, Ph. D. Professor of English, Goucher College.	*English*
Anna Irene Miller, Ph. D. Assistant Professor of English, Goucher College.	*English*

GENERAL STATEMENT

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These have included a great variety of subjects and have followed different methods of treatment. Almost continously since 1890 special courses of class lectures or " lesson courses " have been given from year to year, and many teachers and other persons in Baltimore and vicinity have availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers have completed one or more of these courses of public educational lectures at the University and have received certificates upon passing the required examinations. All this work was done without any reference to credit toward an academic degree.

In continuation and extension of this form of public service, the Johns Hopkins University, acting in co-operation with Goucher College, has offered since 1909 courses of instruction to teachers and others whose vocations prevent their attendance upon college lectures and recitations at the usual hours. The same arrangement is continued as a basis for the courses announced below for 1922-1923. It is the primary aim of these courses to provide teachers in public and private schools with special opportunities for further personal culture and for increasing their professional equipment and efficiency. These courses are similar in character, so far as quality and extent of instruction are concerned, to the corresponding courses given in the academic department. In order to give further encouragement to teachers in service and others to carry on extended systematic study, this plan of instruction also provides that satisfactory work accomplished in these courses will be credited, under suitable regulations, toward the degree of Bachelor of Arts and Bachelor of Science.

Persons other than teachers will, as in the past, be admitted to these courses. They will be expected to present the proper qualifications for the subjects and courses they desire to pursue.

ADMISSION

The preparatory training desirable for the successful pursuit of these courses is that represented by the completion of a standard four-year high school course. In cases where questions may arise as to the adequacy of preparation, the applicant may be admitted provisionally and be given an opportunity to prove his or her ability to sustain the work undertaken. Admission to any particular course will depend upon adequate preparation for the pursuit of that course. Persons may be admitted to the courses either with or without reference to the baccalaureate degree.

THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered by the Johns Hopkins University to both men and women completing the required course of study in the College Courses for Teachers and in the Summer Courses, in accordance with the following regulations:

Those who wish to become candidates for the degree of Bachelor of Science must present evidence of having successfully completed courses of study equivalent to the graduating requirements of a standard four-year high school. This evidence may be offered by either of the following means:

1. Presenting certificates:
    (a) Of graduation from a secondary school having a course of study of four years, and approved by the Committee on Matriculation.
    (b) Of the College Entrance Examination Board, or other approved examining boards.

2. Passing an examination.

Fifteen units of secondary instruction are required for matriculation, of which nine are prescribed and six are elective. The subjects in which the prescribed units must be offered are:

> English (*three, requiring four years*), History (*one*), Mathematics (Algebra and Geometry) (*two*), a Modern Foreign Language (*two*), Science (*one*).

The remaining six units may be offered by election from the following group, the number of additional units accepted in the several prescribed subjects being indicated in parentheses:

> Domestic Science (*one*) or Manual Training (*one*), Drawing (*one*), History (*one*, or *two*), Latin (*two*, or *three*, or *four*), Mathematics (*one*, or *one and a half*), Modern Foreign Language (*two*, or *three*, or *four*), Music (*one*, or *two*), Science (*one*, or *two*), Book-keeping (*one*), Commercial Arithmetic (*one*), Commercial Geography (*one*), Commercial Law (*one*).

Advanced standing may be granted to applicants who offer approved collegiate or professional courses in a college, scientific school, normal school, training school, or technical school in advance of high school graduation.

The course of study enabling the candidate to meet the graduation requirements is made flexible so as to permit a choice of courses in various subjects, within limits, in accordance with the future work of the student.

The requirements are:

1. A series of subjects required of all matriculated students, namely:

   English, two courses; Foreign Languages, three courses in at least two languages; History, one course; Science, one course.

2. A major consisting of three courses in one subject and of two courses in one or two cognate subjects. Required courses may not be counted as part of the work in the major.

3. Electives sufficient to complete the requirement of one hundred and twenty points.

All candidates for the degree must complete a minimum of twenty-four points in the College Courses for Teachers. The maximum credit allowed a student in one summer session is eight points.

By a plan of co-operation with the Maryland Institute of Baltimore, provision has been made whereby candidates for the degree who desire to offer a major in art may do so by completing the following courses:

I. Drawing: Freehand drawing, first year, 6 hours; drawing from the antique, second year, 6 hours; still-life and portrait drawing, third year, 6 or 9 hours; life drawing, fourth year, 6 or 9 hours.

II. Cognate courses: Design, 6 hours, and history of art, 2 hours. The first-year drawing may, and the history of art must, be taken at the University. The maximum amount of credit allowed for drawing is seventeen points.

The Maryland Institute is also announcing a special Normal Art Course for the training of teachers and supervisors of art in public schools. Certain courses in education at the University form a part of this special course.

Similar provision has been made, in co-operation with the Peabody Conservatory of Music, of Baltimore, whereby candidates for the degree who desire to offer a major in music may do so by completing at the Conservatory the following regular courses:

Musical literature, history of music, musical pedagogy, normal class, harmony and harmonic analysis, ear training, and at least one main branch, as piano, organ, violin, 'cello, voice, harmony, or school music. The maximum amount of credit allowed for a major in music is twenty-three points. Candidates completing a major in music may offer more than one main branch.

CO-OPERATION WITH GOUCHER COLLEGE

The plan of co-operation with Goucher College provides that the instruction in these College Courses for Teachers shall be given by instructors selected from the faculties of the Johns Hopkins University and Goucher College. In the case of women who may desire to become candidates for the degree of Bachelor of Arts, it is provided that such credits as they may acquire by means of these courses, to the amount of forty-five units or hours, will be accepted in full by Goucher College toward the degree. A similar provision is made by the academic department of the Johns Hopkins University in the case of those men who desire to proceed to the degree of Bachelor of Arts.

THE DEGREE OF BACHELOR OF ARTS

Those who wish to become candidates for the degree of Bachelor of Arts in this University are referred to the circular descriptive of The College of Arts and Sciences of the Johns Hopkins University, 1922, for a detailed statement of the requirements for matriculation.

Those who desire to become candidates for the same degree in Goucher College are referred to the Announcements for 1922-23, for a detailed statement of the corresponding requirements in that institution.

As a final requirement before this degree can be conferred by either institution, the candidate must spend at least one year in residence.

The degree is conferred by the University upon men only.

EXPENSES

The charge for instruction is twelve dollars a year for each hour per week. Each course will continue throughout the academic year, except as otherwise stated. Where laboratory fees are required they are additional. From two to three hours of laboratory work will be charged as one hour of recitation or lecture.

Students in all other divisions of the University, paying full tuition or on scholarship appointment, are permitted to register in any courses given in the College Courses for Teachers without payment of additional fees, except the regular laboratory fees, upon approval by the proper officer.

Students are required to complete registration, *which includes the payment of fees,* before being admitted to classes. Before payment of fees can be made, a card stating the courses to be taken, must be received from the office of the Director.

Fees are payable in advance in semi-annual installments at the office of the Treasurer, as follows: on or before October 19, for the first half-year, seven dollars per hour; on or before February 10, for the second half-year, five dollars per hour; students registering February 1 for the second half-year only, on or before February 10, six dollars per hour. Students deferring the completion of registration until *after October* 19 for the first half-year, and *after February* 10 for the second half-year, will be subject to a fee of three dollars for the privilege of late registration.

The fee for matriculation as a candidate for the degree of Bachelor of Science is $5. The fee for graduation is $5, payable before the delivery of the diploma. The fee for a duplicate copy of a student's record is $1, payable in advance.

JUMBLE-INN SCHOLARSHIPS

The Jumble-Inn Scholarships were established in 1920 by the gift of a fund to the University from the Jumble-Inn Committee, Mrs. Sumner A. Parker, Mrs. Walter Wickes, Mrs. W. W. Keith, Mrs. James H. Preston, Mrs. Julian Ridgeley, Mrs. William McMillan, and Miss Sarah Fischer. The income of the fund only is to be used for the benefit of women teaching in the elementary public schools of Baltimore who are residents of the city, and who are pursuing instruction in the College Courses for Teachers as candidates for the degree of Bachelor of Science. Preference in every award is to be given to those in need of financial assistance in completing a college course. Application should be made to the President of the University.

SESSION

Instruction will begin Monday, October 9, 1922, and close on Saturday, June 2, 1923. Each course will include instruction for thirty-two weeks, except as otherwise noted. Classroom and laboratory exercises will be given in the afternoon and evening from Monday to Friday and on Saturday forenoon. Instruction will be omitted on the days which occur within the usual University recesses at Thanksgiving, Christmas, and Easter.

SCHEDULE OF HOURS

Classes will be held in the University buildings at Homewood and in certain public school buildings in the city. The complete schedule of hours can not be arranged prior to the opening of the courses on October 9. In addition to the usual afternoon and Saturday forenoon schedule, a number of classes will be held in the evenings at 8 o'clock, usually two hours in one session. Changes in the hours indicated may be made at the opening in order to meet the convenience of students. Where days and hours are omitted, the convenience of students will also be considered in arranging the schedule.

The Board of School Commissioners of Baltimore having extended the privilege of using certain of the public school buildings for classes in the College Courses for Teachers, the University will, within the limits of the schedule of the members of the Faculty, undertake the organization of classes to meet at convenient centers which may be available in parts of the city remote from Homewood.

UNIVERSITY EXTENSION CENTERS

Under a regulation adopted by the Advisory Committee on the degree of Bachelor of Science in September, 1917, non-laboratory courses announced in the program, for which arrangements for instruction can be made, may be conducted at centers throughout the State of Maryland.

The satisfactory completion of courses so conducted will be credited towards the degree of Bachelor of Science, and, also, will be accepted by the State Superintendent of Schools towards the renewal, or advancing the grade, of teachers' certificates.

The general conditions, under which classes will be organized at University Extension Centers, call for a minimum registration of twenty students, and provision by the local class of the place of meeting and the incidental expenses of the visiting instructor. Class exercises are to be held weekly during the regular session, from October to June. The conditions of admission and tuition expenses are described on pages 7 and 10.

Since the adoption of the regulation, courses in Education have been conducted for both secondary and elementary public school teachers at Salisbury, Frederick, Elkton, Rising Sun, Havre de Grace, Rockville, and Woodside. County Superintendents of Schools and others interested in the organization of classes at University Extension Centers should communicate with the Director of the College Courses for Teachers.

COURSES OF INSTRUCTION

Any course for which there are fewer than twelve applicants may be withdrawn. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of, or other than, those mentioned below, an effort will be made to arrange for such instruction.

The exact amount of credit towards the baccalaureate degrees, which will be allowed for the successful completion of each of the following courses, can be determined definitely only at the end of the year.

ART

1. History of Art.

(a) Ancient Art.

A general outline of ancient architecture, sculpture, and painting with some attention to the minor arts and to drawing as seen on vases. The development of the different branches of ancient art from prehistoric times will be systematically considered and their influence on later art emphasized. Lectures illustrated by slides, photographs, casts and original antiquities. Reports and required reading for credit. Books recommended: Reinach's Apollo (Scribner's Sons, New York, 1909); Fowler-Wheeler, Greek Archaeology (New York, 1909).

(b) Mediaeval and Modern Art.

History of the development of Mediaeval, Renaissance, and Modern Architecture, Sculpture and Painting. Lectures, recitations, reports on assigned topics. Text book: Reinach's Apollo.

Professor Robinson. Tuesday, 8-9.45 p. m.

The course on the History of Art must be offered as part of the requirement of the major in art.

2. Civilization and Art in Prehistoric and Minoan Times, and their Relation to Homer.

Professor Robinson. First half-year. Monday, 5 p. m.

3. Outlines of Greek and Roman Architecture. Reading of Vitruvius.

Professor Robinson. Second half-year. Monday, 5 p. m.

4. Roman Art and Archaeology.

Professor Robinson. Tuesday, 4 p. m.

5. History of Greek Literature in English.

Professor Robinson. Tuesday, 2 p. m.

6. The Private Life of the Romans.

Associate Professor Magoffin. Tuesday, 3 p. m.

CHEMISTRY

1. General Inorganic Chemistry.

No previous knowledge of chemistry is required. The work covers the general principles and laws of chemistry and a study of the more important metallic and non-metallic elements. In the laboratory selected experiments, illustrating the preparation, properties and reactions of inorganic substances and the application of chemical laws, are performed.

Professor GILPIN, Dr. WHITNER and Dr. BEARD. Lecture, Monday, 8-9.45 p. m.; and laboratory, 7.30-10 p. m., Tuesday or Friday, or Saturday, 9 a. m.-12 m.

2. Qualitative and Quantitative Analysis.

This course will include chiefly laboratory exercises, with two sessions each week. Occasionally a part or all of an evening will be devoted to a discussion of the theoretical principles of the reactions being studied. As the laboratory work is of an individual character, an effort will be made to meet the needs of each student in the kind of work assigned. Practice will be given in the methods of gravimetric and volumetric quantitative analysis.

Dr. WHITNER and Dr. BEARD. 7.30-10 p. m., Tuesday and Friday.

3. General Organic Chemistry.

A systematic course in the general principles of organic chemistry and the properties and reactions of the paraffin and benzene derivatives. It will consist of one lecture (two hours) and one laboratory period each week. The course will be so arranged as to meet the needs of those preparing for the Medical School, the School of Hygiene, or advanced work in Domestic Science.

Prerequisite: Chemistry 1.

Professor GILPIN, Dr. WHITNER and Dr. BEARD. Lecture, Thursday, 8-9.45 p. m., and laboratory, 7.30-10 p. m., Tuesday or Friday, or Saturday, 9 a. m.-12 m.

Laboratory fee: $15.00 for each course, in addition to breakage; Deposit fee: $5.00 for each course.

CHINESE

This course for beginners provides instruction in spoken Chinese. and in writing characters and composing sentences in Chinese.

Mr. CHEN. Friday, 4-6 p. m.

DRAWING

The instruction in this course in freehand drawing aims to impart such knowledge of the principles of drawing as shall give students the ability to represent natural objects correctly.

This course may be offered as the first-year requirement of the major in art.

Mr. WHITEMAN. Six hours weekly. Monday, Tuesday, Wednesday, Thursday, 2-5 p. m.

EDUCATION

1. History of Education.

The course presents in outline the history of Education, tracing the development of those ideas, practices and institutions of the past which have been most effective in determining the essential features and problems of education in the present. The work is based on Cubberley's "The History of Education" and "Readings in the History of Education."

Professor BUCHNER. Monday and Wednesday, 5.10 p. m.

2. Principles of Education.

This course on the principles of Education undertakes a study of education with a view to understanding the work of the school and the mental and social factors in individual development.

Professor BUCHNER. Tuesday, 4.10-6 p. m.

3. Educational Psychology.

(a) During the first half-year the following topics are considered: The laws of learning and their application to elementary and secondary school instruction; work; fatigue; practice; individual differences.

(b) The second half-year is devoted to mental development of school children, and includes such topics as psychological characteristics of children at different ages; growth curves of intelligence; adolescence.

Dr. BROOKS. Thursday, 4.10-6 p. m.

4. Educational Psychology: Elementary School Subjects.

Analysis of the learning processes with special reference to reading and arithmetic, some attention being given to handwriting, drawing, language, composition and the social studies.

Note.—Education 4 is the first half of a full-year course, which includes Education 4 and 6.

Dr. BROOKS. First half-year. Monday and Wednesday, 4.10 p. m.

5. Educational Measurements.

(a) Collection and Interpretation of Educational Data.

This course deals with the principles and technique fundamental to scientific experimentation in education and to the interpretation of experimental data. Practice in the necessary statistical procedures. Text-book: Thorndike, "Mental and Social Measurements."

Students who need to use statistical methods in carrying on studies in education will be required to do additional work in this subject, hours to be arranged.

(b) Intelligence of School Children.

Principles and technique of rating the intelligence of school children; the development and forms of intelligence tests, both individual and group; statistical evaluation and graphical presentation of data; interpretation and application of results with special reference to the classification and instruction of children.

Dr. BROOKS. Friday, 4.10-6 p. m.

6. Educational Measurements: Tests of Elementary School Subjects.

A study and evaluation of the more useful scales and tests suitable for use in the elementary school.

Note.—See Education 4, note.

Dr. BROOKS. Second half-year. Monday and Wednesday, 4.10 p. m.

7. Secondary School Organization and Class-Room Management.

Dr. WEGLEIN. *1923-24.*

8. The Curriculum and Instruction in Secondary Schools.

(a) The first half of this course considers the principles involved in dealing with the special problems connected with the program of studies.

(b) During the second half-year attention is given to types of learning characteristic in secondary schools and to methods of instruction in the several subjects.

Dr. WEGLEIN. Thursday, 4.10-6 p. m. Western High School, Room 107.

9. The Junior High School.

The reorganization of education, historical survey of the junior high school, articulation of junior high schools with elementary schools and with senior high schools, provision for individual differences, programs of study, problems of administration and supervision.

Dr. WEGLEIN. Monday, 4.10-6 p. m. Western High School, Room 103.

10. The Teaching of General Science in Junior High Schools.

This course deals with the content, methods, textbooks, laboratory work, equipment, and reference readings, of the general science course in junior high schools. Special attention is given to the experimental illustrations in classroom instruction.

Dr. INGHAM. Wednesday, 3.30-5.30 p. m. Baltimore City College, Room 15.

11. Elementary Education.

This course is intended to give teachers an insight into the scientific procedure in elementary education. It will study the learning process in relation to specific needs of pupils in the fundamental subjects of the curriculum. It is intended to aid teachers in the analysis of those specific habits in the control of which it is necessary for children to attain skill; the fundamental processes in arithmetic; reasoning problems in arithmetic; language; silent and oral reading; spelling; handwriting.

There will be written reports based on assigned readings. One report will be required from each student based upon a careful study of the effect of scientific procedure upon one individual child.

This course is intended for teachers in the first six grades of the elementary school.

Associate Professor BAMBERGER. Saturday, 9.15-11 a. m.

12. Elementary Education: Kindergarten and Primary Grades.

This course is intended for teachers in the kindergarten and the early primary grades. It deals with those original or acquired interests, needs, and desires of the young kindergarten and primary children that have educational significance. These are considered in relation to the types of schoolroom activities and the kinds of subject matter that aid in controlling and directing original and acquired tendencies toward social ends. Lectures, reports, lesson plans, and teaching tests.

Associate Professor BAMBERGER. Saturday, 11.50 a. m.-1 p. m.

13. Elementary Education: Methods and Plans for the Intermediate Grades. II.

This course is intended to give insight into the learning process in relation to the specific needs of pupils in the fourth, fifth, and sixth grades of the elementary school. It discusses such topics as the attainment of skill in handwriting; in written composition; and the selection and presentation of topics in history and geography.

Lectures, assigned readings, and reports.

Associate Professor BAMBERGER. Monday, 4.20-6 p. m. Western High School, Room 108.

Note.—This course is in continuance of Education 18 given in 1921-22.

14. The Elementary School Principalship.

This course is intended for principals, supervisors, critic teachers, and those desiring to prepare themselves for such positions. It deals with the work of the principal as a supervisor of instruction. Such topics as classroom supervision, teachers' rating, types of data necessary for records, and devices for accurate recording are considered.

There will be observations of teachers at work and actual records made and discussed, in addition to the regular readings and reports in connection with the work of the course.

Associate Professor BAMBERGER. Thursday, 4.20-6 p. m. Western High School, Room 109.

15. Teaching the Elementary School Subjects.

A preliminary discussion of the larger aims in education is followed by a critical survey of present practice in teaching in the intermediate and grammar grades as regards content and method. Special attention is given to changes taking place in response to social demands made upon the school. A series of problems in the teaching of the fundamental subjects furnishes the basis for class discussions. Extensive reading assignments anticipate a working knowledge of the best new books on the teaching of the common branches. The course very definitely looks toward the improvement of classroom instruction. While no one book will serve as a text throughout the course, Rapeer's "Teaching Fundamental School Subjects" will be found generally helpful.

Mr. DOUGLASS. Thursday, 4.20-6 p. m. Western High School, Room 108.

16. The Individual in Relation to Classroom Organization and Management.

Aim: to make such analyses of a teacher's class as will result in a thorough diagnosis of each individual child's needs stated in terms of standard scores in school subjects. On this basis remedial measures will be applied.

There will be assigned readings and written reports. Each student will be expected to give four standard tests to her class, and to use the results of these for analysis and study. Each student will be responsible for case study of two individuals. Careful testing will be followed by graded remedial measures and accurate records of growth and progress will be kept throughout the year.

This course is designed for experienced teachers in the elementary grades, for practice teachers and for supervising principals.

Associate Professor BAMBERGER. *1923-24.*

17. Special Problems in Classroom Leadership.

This course is intended for advanced students and experienced teachers who are interested in the special problems which arise in the leadership of children. Solutions of these problems along lines of pupil participation in school activities will be attempted. For this purpose the class will be organized in groups meeting on alternate weeks for laboratory exercises. Each student will choose the group in which he wishes to work and each group will elect one or more specific topics for intensive study. The field of activity will be limited to the elementary grades. Observation and demonstration lessons illustrating various phases of the topics selected will be given for the entire class from time to time.

The selection of the topics will necessarily await the initiative of the members enrolled, but opportunity will be afforded to any desirous of investigating the following topics: the relation of the learning process to silent reading in the first and second grades; individual growth in relation to supervised study; group co-operation in relation to supervised study; care of the gifted child; learning through projects; literature in relation to child interests. Students will provide all test material.

This course is intended for experienced teachers who desire to investigate and experiment in their particular fields, for critic teachers, for teachers of method in normal and training schools, and for supervising principals.

Associate Professor BAMBERGER. *1923-24.*

18. Experimental Education.

This course deals with educational measurements and tests and includes a comparative study of investigations in educational research. Attention is given to methods of attacking educational problems in the fields of standardized scales and surveys of pupil achievements in school subjects and of rating the intelligence of school children, with special reference to the application of results to the control of instruction and the organization of schools. Research will be undertaken in problems in either elementary or secondary education selected according to the chief interests of individual students.

Professor BUCHNER and Dr. BROOKS. Saturday, 11.15 a. m.-1 p. m.

ENGLISH

1. English Composition.

This course will include a review of the essentials of usage, the study of the principles of structure and style, and frequent practice in writing. Weekly themes will be required; these will be returned with written criticism.

Dr. LITZ. Tuesday and Thursday, 5.10 p. m.

2. History of English Literature: 1500-1625.

During the first half-year, an account of the revival of learning and its influence upon Elizabethan prose and verse, with the detailed study of selections from the poems of Spenser.

During the second half-year, a survey of the development of the English drama and the reading and study of the more important comedies of Shakespeare.

Associate Professor FRENCH. Monday and Wednesday, 5.10 p. m.

3. Browning and Tennyson.

(a) First half-year: Browning; (b) second half-year: Tennyson.

A fairly close study of the work of the two poets, including such long poems as *The Ring and the Book* and *The Idylls of the King*, and selected dramas. A few introductory lectures will be devoted to a survey of the Victorian period in literature and the social and intellectual tendencies of the age as reflected in the work of the poets under consideration.

Professor HOPKINS. Tuesday and Thursday, 4.10 p. m.

4. Shakespeare.

An intensive study of five of Shakespeare's plays, namely: *Othello, Much Ado About Nothing, Antony and Cleopatra, Winter's Tale,* and *Coriolanus.*

Professor KUHL. Monday, 8-9.45 p. m.

5. Modern Drama.

(a) First half-year: A study of the principles of the drama as an art form. A few representative dramas will be carefully studied as illustrative material and will be used as a basis for the discussion of how to read and how to judge a contemporary play. Those interested in play-writing will be given an opportunity to try the adaptation of a short story or an original one-act play. Other members of the class will be expected to make a careful study of a dramatist or of a special problem.

(b) Second half-year: A study of the more important figures of the British and American drama during the revival of the last thirty years, among them Barrie, Shaw, Galsworthy, Masefield, Barker, Lady Gregory, Yeats, Synge, Dunsany, Clyde Fitch, Moody, O'Neill. Further practice in play construction or in dramatic criticism.

Assistant Professor MILLER. Saturday, 10.15-12 a. m.

6. The Technique of the Drama.

This course, arranged for those who are interested in play-writing, includes careful study of plotting, characterization, dialogue, scenario-making, and similar problems, and constant practice. There will also be an opportunity to become acquainted with recent developments in the several arts of the theatre, lighting, scenery, producing, and with the history and significance of the principal experimental theatres, European and American, which have done much to bring about "the liberation of dramatic art" of the last few years.

Though the main emphasis of the course is upon original writing, the instructor will refer frequently to masterpieces of the drama and suggest reading in special fields.

Students are expected to become members of the Homewood Playshop of the Johns Hopkins University. This organization offers a laboratory for testing original plays of unusual merit.

Assistant Professor MILLER. Wednesday, 8-9.45 p. m.

7. Anglo-Saxon.

An introductory course, offered in the English Seminary, with lectures on the Germanic and Indogermanic relationship of the language.

Professor BRIGHT. Friday, 3-5 p. m.

FRENCH

1. French Elements.

This course is planned for students beginning the study of French and aims to impart a good reading knowledge of the language. It includes grammar, pronunciation, composition, and translation. Upon the successful completion of the course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in French.

Mr. DAVIS. Tuesday and Thursday, 4.30-6 p. m.

2. French Reading.

A course in French reading, grammar, and composition, for students who have had the equivalent of Course 1. The texts will be chosen from modern authors, and the exercises in composition will be of a practical nature.

Mr. DAVIS. Monday, 4.10-6 p. m.

3. French Elements.

This course is planned for students beginning the study of French. It includes grammar, pronunciation, composition, and translation.

Dr. Dulac. Monday, 4.10-6 p. m. Western High School, Room 101.

4. Intermediate French.

This course provides for a continuation of grammar, pronunciation, composition, translation, and conversation based on reading and current expressions and idioms.

Dr. Dulac. Thursday, 4.10-6 p. m. Western High School, Room 101.

5. French Literature.

A survey course on French literature of the last three centuries, conducted in French. Collateral reading.
Pre-requisite: two years of French.

Dr. Dulac. Tuesday, 4.10-6 p. m.

6. Practical French.

Practical exercises in spoken French. The nature of this course will depend upon the previous training of those who wish to follow it. It is intended, however, primarily for those who desire to increase their knowledge of practical modern French.

Mr. Davis. Wednesday, 4.10-6 p. m.

The following graduate courses are open to those with adequate preparation, the hours to be arranged on Saturday or an afternoon:

7. The Seventeenth Century. II. (1660-1700).

Professor Lancaster. One hour a week.

8. The Eighteenth Century Novel.

Professor Chinard. One hour a week.

9. The Lyric Poetry of Victor Hugo.

Professor Chinard. One hour a week.

10. The Nineteenth Century Drama.

Professor Lancaster. One hour a week.

GERMAN

1. German Elements.

This course is adapted to those who wish to begin the study of German or who have had a partial introduction to the language. The work will include the principles of grammar, pronunciation, translation, and composition. Upon the successful completion of the work, the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in German.

Associate Professor Roulston. Three hours a week.

2. German Reading.

Modern prose readings with exercises in prose composition. Such writers as Storm, Sudermann, C. F. Meyer, Arnold, Schurz, etc., will be read. This course corresponds to collegiate German 1, and, if satisfactorily completed, will be credited accordingly. The two hours of literature and the one hour of composition may be taken jointly or separately.

Associate Professor Roulston. Three hours a week.

The following graduate courses are open to those with adequate preparation, the hours to be arranged on Saturday or an afternoon:

3. Systematic Phonetics (English, French, and German.)

Professor Collitz. First half-year. Two hours a week.

4. Goethe's *Faust,* Second Part.

The second part of *Faust* must be regarded as Goethe's final word not so much to his own time as to mankind generally. An effort will be made to interpret the meaning of this message.

Professor Collitz. Second half-year. Two hours a week.

GREEK

An Introduction to the Greek Language.

The purpose of this course is to give students who wish to become acquainted with Greek a reading knowledge of that language. It will consist of assigned lessons or exercises. The selections for reading, when the class is ready for them, will be drawn from as varied a field as possible.

Text: Allen, *First Year of Greek* (Macmillan).

Dr. Baker. Three hours a week.

HISTORY

1. *A.* Recent United States History.

This course covers the period from the Civil War to the present. It supplements by means of a more detailed study the survey course of United States history from 1783-1883. Especial emphasis is laid upon economic developments and their bearing upon domestic politics. The evolution of the foreign policy of the United States is traced in detail.

Or,

B. History of the United States, 1783-1883.

A survey of the political, social and economic history of the United States during the first century of national development. A syllabus will be provided and no single text-book will be used.

Professor Gallagher. Monday, 8-9.45 p. m.

2. *A.* Contemporary European History.

This course is a general survey of European history in the nineteenth and twentieth centuries. Special emphasis is placed upon the expansion of Europe into Asia and Africa and the course of international politics leading up to the great war of 1914. The course closes with a study of the Peace Settlement of 1919.

Or,

B. British Empire Since 1815.

This course will take up the history of the British Empire as distinct from the history of England. Particular attention will be given to the interests of India, Canada, Australia, New Zealand and South Africa. The recent nationalistic movements in Egypt and India will be considered, and the place of the British Empire as a world power by the terms of the treaties of 1919-1920.

Professor GALLAGHER. Thursday, 4.10-6 p. m. Western High School, Room 103.

3. The History of Greece and Rome: Political, Legal, Military, Economic, Municipal.

This course covers both Greek and Roman history, and provides a background against which is projected the political panorama of the two great civilizations which have so mightily influenced Occidental history. Both the theory and the practice of two legal and political minded peoples are seen in the kaleidoscopic changes in their types of government. The growth of law into legal system, the differences between the Greek city-state and the Roman municipality, the experiments of federal and religious leagues, the realities of economic life with no experience of economic law, the development of military tactics, strategy, and discipline, and the breakdown of militaristic establishments, are traced by means of translated sources and comparative research. Methods of teaching are suggested by means of practical work in chart studies of trade routes, of colonization, of national expansion, and of diplomatic and military penetration.

Texts: Botsford's *Hellenic Civilization;* Boak's *History of Rome;* Leadbetter's, McKinley's, or Lewis' *Outlines;* Botsford's *Syllabus;* Zimmern's *Greek Commonwealth;* Frank's *Economic History of Rome;* Whibley's *Companion to Greek Studies;* Sandys' *Companion to Latin Studies;* Jones' *Companion to Roman History.*

Associate Professor MAGOFFIN. Friday, 7.45-9.30 p. m.

4. The History of Greece and Rome: Archaeological, Literary, Religious, Intellectual, Cultural.

Associate Professor MAGOFFIN. *1923-24.*

HOME ECONOMICS

Foods and Household Management.

This course is planned to meet the needs of home economics teachers in the public schools whose major field of work is foods and household management. The course includes a study of the newer phases of work in domestic science classes.

The chief topics are: administration of practice apartment work in junior and senior high schools; problems in household hygiene and sanitation, decoration, furnishings, business; management of types of households; methods of introducing these subjects in public school classes; problems in dietetics and the applications of the principles of nutrition to the feeding of a family; discussions of the recent nutrition experiments.

Miss ZUILL. Tuesday, 4-6 p. m. Western High School, Room 411.

HYGIENE

The course in hygiene consists of lectures, demonstrations and laboratory exercises. Attention is given to the principles of bacteriology as applied to sanitation and the prevention of disease, and the principles of physiology as applied to school hygiene and the hygiene of the individual.

Associate Professor FORD and Assistants. Saturday, 9 a. m.-12 m. School of Hygiene and Public Health, 312 West Monument St.

Laboratory fee: $5.00, payable at the School of Hygiene and Public Health.

ITALIAN

1. Italian Elements.

The object of this course for beginners will be to acquire a reading knowledge of modern Italian and correct pronunciation. Prose composition will begin as soon as the most elementary part of the grammar has been mastered. The following text-books will be used: Phelps, *Italian Grammar;* Bowen, *Italian Reader;* Collodi, *Le Avventure di Pinocchio.*

Dr. GRUENBAUM. Wednesday, 4.10-5.50 p. m.

2. Italian Reading.

Selections from classical authors. Italian composition. History of Italian literature.

Dr. GRUENBAUM. Three hours a week.

JOURNALISM

The Principles and Practice of Journalism.

This course of lectures on journalism and practical exercises in newspaper work includes discussions of the journalistic styles, news stories, the reporter and his work, editorial writing, book reviewing, the departments of a modern newspaper, and the technical processes of publication.

The course is given in co-operation with *The Sun* and *The Evening Sun*, Baltimore. Students are offered an opportunity to study the making of a newspaper in practice, to use the plant of *The Sun* as a laboratory for such study, and to write under the direction and criticism of a member of its editorial staff.

Mr. PORTER. Wednesday, 8-9.45 p. m.

MATHEMATICS

1. Trigonometry and Analytic Geometry.

Pre-requisite: Elementary Algebra.

Text: Young and Morgan, *Elementary Mathematical Analysis* (Macmillan).

Associate Professor MURNAGHAN. Three hours a week.

2. Differential and Integral Calculus.

Pre-requisites: Plane Trigonometry and Plane Analytic Geometry.

Professor HULBURT. Wednesday, 4.10-6 p. m.

3. College Algebra.

Professor HULBURT. Two hours a week.

ORIENTAL SEMINARY

The following courses in Oriental history, literature, and archaeology, offered in the Oriental Seminary, presuppose no knowlege of the Hebrew or Greek languages:

1. History of the Ancient East (Egypt, Babylonia, Assyria, Persia, Israel, and Judah).

Dr. BLAKE. Wednesday, 5 p. m.

2. Biblical Archaeology (Egypt, Babylonia, Palestine).

Professor DOUGHERTY. Thursday, 5 p. m.

3. The Literature of the Old Testament (with special reference to date and authorship).

Dr. ROSENAU. Monday, 5 p. m.

4. Interpretation of Selected Chapters of the Authorized Version.

Professor HAUPT. Tuesday, 5 p. m.

PHILOSOPHY

1. *A*. Logic: Inductive and Deductive.

An examination of the structure and technique of knowledge; observation and evidence; the establishment of fact, cause, principle, and system; the explication of meaning; and the processes of proof.

Or,

B. Introduction to Philosophy.

An attempt to reach the general problems of philosophy by means of an examination of some particular contemporary questions and ideas; such as, the theory of relativity, the new realism, artistic immediatism, programs of perfection, pragmatism, intuitionism, the unconscious, the finite God.

Mr. HAMMOND. Thursday, 8-9.45 p. m.

2. Ethics.

Individual morality and happiness: an inquiry concerning the province of moral value, the meaning of good and its recognition, the relation of ethics to religion and to politics; and, a discussion of the classical doctrines of happiness. The expression of ethical ideas in literature will be considered illustratively.

Mr. HAMMOND. Monday, 8-9.45 p. m.

3. Aesthetics.

The nature of beauty and its place in human experience. Special attention is given to the appreciation of literature.

Dr. CORY. Wednesday, 8-9.45 p. m.

POLITICAL SCIENCE

The course in Political Science consists of a general survey course in American government, national and state. It is given in two half-year units. Students may enter the second half-year unit without having had the first half. It is planned with a three-fold purpose, (1) to acquaint the student with the fundamentals of American citizenship, (2) to prepare for the teaching of civics in secondary schools, and (3) to lay a broad foundation for the study of law or for further work in political science.

(a) The first half-year of the course is devoted to a study of the national government of the United States, including the historical development, structure, and operation of the national government; the constitution; the rights and duties of citizens; the executive; Congress; and the judiciary. Some attention is also paid to party organization and political issues.

(b) During the second half-year the class will study American state and local government: the place of the state in our system of government, state constitutions, the organization and functions of the various departments of state government; popular control through the initiative, referendum, and recall; organization of the state administration and the introduction of the budget system. Attention will also be paid to county, township, and city government, home rule, commission government, and the city manager plan.

Professor Debel. Wednesday and Friday, 4.10 p. m.

PSYCHOLOGY

1. Introduction to Scientific Psychology.

A study of the human mind in relation to the activities of the organism. Special attention will be given to the neural basis of consciousness, the development of perception, habit-formation, instinct, emotion, and will.

Associate Professor Johnson. Tuesday, 4.10-5.50 p. m.

2. Laboratory Course in Psychology.

Practice in the observation of typical phenomena. with training in the methods and technique of psychological research. This course is open to students who have taken Psychology 1, or may be taken concurrently with that course.

Psychology 1 *and* 2 absolve the requirement of a laboratory course in science on the part of candidates for the degree of Bachelor of Science.

Mr. Isaacs. Tuesday and Thursday, 7.30-10 p. m.

3. Social Psychology.

The course undertakes a survey of the psychological factors involved in social relations. Such topics are considered as the primary instincts and emotions, imitation and suggestion, efficiency and its evaluation, the family group, and the social function of religion.

The course will be given only for a minimum registration of fifteen.

Professor Dunlap. Tuesday, 8-9.45 p. m.

RUSSIAN

1. Russian Language.

This course includes instruction in elementary grammar, colloquial and written Russian. Practical exercises are based on standard prose works.

Mr. Breit. Friday, 8-9.45 p. m.

2. Russian Civilization and Literature.

(a) The first half-year is devoted to a study of the historical development of Russian culture in its educational, economic, ethical and intellectual aspects from the beginning of Russia as a national entity to the present time.

(b) The second half-year offers a survey of Russian literature in its historical development from the period of the oral ballads and lyrics to present-day writers, special attention being given to the classical writers.

Some attention is given to the history and development of contemporary Bolshevism as a result of the theories of Marxism, Proudhonism, and Fourierism, and its practical applications as shown by present conditions in Russia.

This course does not require a knowledge of the Russian language.

Mr. Breit. Wednesday, 4.10-6 p. m.

SPANISH

1. Spanish Elements.

A course intended for beginners. Upon successful completion of this course the student receives credit for one course if offered as college work; if offered for matriculation, it absolves the requirements in Spanish.

Professor BEARDSLEY. Wednesday and Friday, 5.10 p. m.

2. Practical Spanish.

A practical course in Spanish for those who have had the elements of the language, and who desire to gain a broader knowledge of the literature, together with facility in speaking and writing Spanish.

Professor BEARDSLEY. Wednesday and Friday, 4.10 p. m.

3. Spanish Literature.

Explanation of the texts of classical Spanish authors. Menéndez Pidal, *Antologia de prosistas castellanos.*

Mr. ROBLES. Monday, 4.10-5.50 p. m.

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